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tgggttcgtg ttttcgaatg agtgagt 5427

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(2) INFORMATION FOR SEQ ID NO:601

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:601

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ggacaaagct accggacgca tcatcacgga tctgatgtat aagcattgga cgagtgggtg 60
gagaccatac cacatccctt catcgcgaa cgcacggagg aatgatcacc accggcaaag 120
acatcatgga gggcgaaacc tacgaggtcc gatgaaaccg tggtcgggta tcgaagattt 180
cagttggagc cctgacgaca gaacatagca tacgccaagc cgcaagaaaa cgggcatggc 240
atatttctgt ctaccaactc ggacatatat atctataatc tggcttccgg ccggcgacac 300
acatttccga agggatgatg ggctacgaca cctatccgaa gttagccccg acggcaagag 360
cattgcatgg atcagcatgg agcgcgatgg attgaaagcg atctgaagcg tcttttcgtg 420
ggcggatcct gccacaggaa acgcacccat gtaaaccac attcgattac aatgtggata 480
tgatccaatg gcaccggaca gtaagggtat ctatttcctt gcctgtaagg agcagagaca 540
atctggggga gatcacgctt gaaaa 565

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(2) INFORMATION FOR SEQ ID NO:602

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:602

ctttgggcta	aaaagatcaa	aaggctggtc	gatttttgtc	tcgcattgat	tttttagcta	60
tttccctgcc	ttttatgctg	atcatagctt	tgatcatttc	ctgcaagacg	ggggggctgc	120
aatctttctca	caagaacgca	tcggtctgga	ggaaagcctt	tcatgctata	taagtttcgc	180
tcaatgaagg	tgaatgagaa	gccaacaatc	agcctcagct	attccagaaa	aatgattcga	240
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aatatcatca	aaggcgatat	ggctatcgta	ggctacaggc	ctgaagggaa	tattacatct	360
gccaataaat	ggaaaagaat	ccggactacg	cctactgtac	gaaataaggc	cgggtctggt	420
ttcctatgct	acgctgacaa	cgctatacgg	atacgatagc	aaaaatgctg	gtgcgtctgg	480
agatggattg	tatacttgca	aaaatcagtt	ct			512

(2) INFORMATION FOR SEQ ID NO:603

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 930 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:603

attggatcga	tacgagtatc	ggtggcaata	tcggattcta	tatggcgaaa	atagtctgag	60
cggacagaaa	gattctcgca	catacgattt	tggcggcatt	atcaagttgc	cctaacgctt	120
ccctatggat	tccgtatcga	cagcgatttg	aatacaatac	gaactccggt	tacagcggag	180
gattcaagtc	tggacgatgg	ctttggaatg	cttcgctttc	atacagcttc	ctccgtgaca	240
agggcgta	ctgcgtgtca	atggctatga	catcctcggg	cagcgggtcaa	gtatagccgt	300
tctgcttcgg	ccatcaatat	agaagagagc	atgtccaata	cgacggacgc	tacgtgatgg	360
tggactttat	ctaccgattc	aacgccttca	gtgtggtgga	tctcgcagcg	atcatcagcg	420
tggcaatatg	aatcgctcgg	gccacctttc	ggcgggtggca	gacgaccgtc	ctgatcagac	480
gccacctatc	gcaagagaca	aagtgtgtaa	gtgtttttat	aacgaaccga	tcgagggggcg	540
tgtcaaaatt	tgattttgtc	gcagccctct	ttcttttgctc	cttgacagtgg	ttaggcaacc	600
ggcttcatct	tggaggccct	actttattat	cttttcgaga	catagaagcg	aatcaggcta	660
agattgtatt	tattctgtac	agacacgaaa	aacagtcfaat	tgacaatgaa	atcttcccgg	720
aaaatgccat	gcgacatctc	atctatcggg	ttaacaggct	cacacggaac	ctccactcc	780
ccgacctgcc	atccgacaca	gagcagatag	catcttccat	caatagacca	tagatcctct	840
catgtgagac	catagtatcc	tctcatacga	gaccatagta	tctctcatgt	aagaccatag	900
tatcctctca	tgtaagacca	tagtatcctc				930

(2) INFORMATION FOR SEQ ID NO:604

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:604

gggcacgaat	gacacgggta	ttattcctga	ccagcatact	gcccgatgga	gtacttccga	60
taattgggaa	aatacggcat	cctttatctc	acccttgat	aaacgagcaa	tttacaggca	120
tcgcgctgtg	gcaaagcatg	tttggcattc	gttcttcggg	caatggatag	tcgtagtcgg	180
caatggaaat	atccgtgtcg	taatcatcgt	ggtatgat	tttgcgcggc	aaaattagca	240
aatacatggc	cgaacatgct	cttttctgag	tgtactgatc	ccattcgaga	tgtaaatac	300
ggatttctac						310

(2) INFORMATION FOR SEQ ID NO:605

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 596 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:605

gaggaagaac	caatccctct	cggaaaaacct	acactcaacg	aactgatggc	aaccactgg	60
aaggaggaag	cgaatacatc	gaactataca	accctacgac	aaacctgtcg	ttccctctaa	120
attcgccata	ggcatactcc	gcaatggagc	tacaccacca	caactgcact	gccgactgta	180
gccgatacac	tctatcgggg	caatacatcg	tctttgccaa	gaagagttag	ggagtcactg	240
acttcacccc	caagcgcaaa	atgttggtcac	gatgagcaac	ctgcctcagc	tggaataaag	300
ggatttacga	tcggactgtt	cgaagaaggc	cttgatcaac	ctctgaagaa	gtgggtctatt	360
cacctaaaat	gctcggagaa	ggaaaatgta	acagacgagg	gggtatcact	ggagccgtat	420
ctccttcgag	actccggatt	cgattccgac	caactgggca	ggcggactcc	atcggcaggg	480
atatgtact	cggctacctn	aactnccaat	cctcaatgca	gatactcca	gtagggtac	540
caataacgaa	acagaagcaa	cggaaaagct	acctgncacg	gcagtatacc	gaagaa	596

(2) INFORMATION FOR SEQ ID NO:606

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 653 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...653
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:606

gcatggcttg	ttttgacctc	tctgcggtta	tggggggaga	ggctgaaacc	gacaatggct	60
gcgtagcggg	ctgatgcata	ccgatcatat	acattatagg	tgggtggata	tacccgtcat	120
ggaggactgg	tggccgatgc	cttactcgct	ctattgtccg	tggcaaatg	gataggagcg	180
accagtncaa	actctaaata	gccttacaaa	ccctgatgat	tacgcttgat	ttccggcata	240
gcaggggtga	cgaagctatg	ccggtgcgaa	tgacacttgt	gcccccttac	caatggcaca	300
ccactcggca	tacgcatact	cgcatcccg	tgccaacaaa	ctcaaccgcc	gaaaaaagga	360
atcgggcacc	ttcctcttcg	acaaaaacac	gaccataaat	ggacaaaaca	tggttcgtga	420
atttcgagaa	actcgagcct	aaaattattc	ttttggctcg	caaaaatttc	acttctcaaa	480
ccaaaagcaa	attttcccg	gccacgtttt	tcagaaccac	ggatcacaat	cttttggcac	540
acaaataaaa	ctctcggagc	catcggctct	tttatctcag	caaggatgta	aaattcgacc	600
gattacacat	gcctaaacct	ttttcgctag	gcattgtata	gagtcatggt	ttc	653

(2) INFORMATION FOR SEQ ID NO:607

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 682 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...682
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:607

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cagagaccga	ctcgaaagat	gcaactnngg	ccaatatcta	tggcatagac	gccttttgnn	120
gggggacgcc	acacggcccc	aatagacaaa	ttcccatccg	gaagtagtac	ttaacccaac	180
aaaaaacc	gaaataagca	atgaatatcg	ataattcttc	cacaacgatt	cagggaaaga	240
ccatctcgtc	agggtctgac	gcattaaaaa	cagctttcta	agtactttta	tagtggttaa	300
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tctcaacagg	agcatcagct	ggtggatgta	gaagcttttg	aggggcttta	agcgatggat	600
tgaagcttta	ttctcggcac	ttcgggtaaa	catattgatt	gatggcaaga	cgatgccggg	660
agtgaagaac	tctctttcga	ta				682

(2) INFORMATION FOR SEQ ID NO:608

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 645 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...645

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:608

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cagccagtgt tcccagttat ataaaacaac cccagggatg cctttactaa cccctgaggt      60
tcttttaaat aacttgttcc attgccggat ttcgtctatg ttcagtcatc cgttcgctcg      120
tgaatcgggtg aaatcttttt acatggcggtg aaagaggcca agaagccaca gacaatccct      180
gggaagttgg ctataagatt ggccaatcct tcttcttacg aataaaacca taccctaccc      240
acagtcgcag ttgatacctg cgaccattgg ctgaagccaa tcacctttat gtccgagaga      300
ttggaaccaa tctgtggaat ataagaaaca tacatcgcca tagtgttgcc gtggcaatcc      360
aaccgagaac tgacaaaaat ttttcttgat tcttttacta ccatgttttag ttcttggtgt      420
tagcaaagat agtattcgca attaatcaaa gtaggtatgt aacaaagaaa aatatatgag      480
gtcgatgatt gtttaaacac tgtatgttgc gccttctctg atgctatttc tgtgccgggt      540
agctctctga ggtgtacga gtgcagattc gattctcaaa tatccatctg attattgtta      600
cacttgtaga aattttcatg gccgacatcc gaataaaaga atacc                      645

```

(2) INFORMATION FOR SEQ ID NO:609

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 754 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...754

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:609

```

ggaaattacc ctttaatctt ttctatttag gcaaacactc aaaaaataat tttatgtatt      60
tgtccataac ggagaatatg cttatggcca agataccttc ctactgtttc aaggccaata      120
ggtaagaata ttcgcaaagt gcttcgtaaa ttatgcggaa acagcccaaa tatttattgt      180
tctgtccaga attggagaga tgaatacaat cttttatgta ctaaatagaca agatatatgt      240
ttacaagttg cacaatatga agaatacgag ttgagcgatt attttaaaca ctctctcggt      300
gaaattgtag tatacctcaa aggaggggat tggtcgaggt tgcctatttt gggactttat      360
atgtttttac tctgcctcaa aaaaaaaga ataggtggtt atggtgctgc agtcgtatac      420
gaaagctaga agttgaatac ccgcaggaag taacgaaaaa atcaaaaaa acacaaaaaa      480
acagaatcgg gactagagcc gggggcatag ggaatggtta ttttccact catggggatt      540

```

```

cctgcgccaa aagctatatc tttgtaaagt gaaccaatca gcgtggaaga tttgtaatgc      600
ttgcaaccca cgagaaaaaa tgctaaaaca tttcttctag aaagctcttt cgacagctat      660
tctccaatgg gagtgtgcaa gccctttgtg cgaaggaagt tttacaaatt aaaagcataa      720
agatatgagc tatctttcac atccgaatcg gtgt                                     754

```

(2) INFORMATION FOR SEQ ID NO:610

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 377 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...377
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:610

```

gctgtgtcta ngtttggggn acccggtatc agctttctct atttctgcc aagatcaatt      60
atcgtcacgt tggtttgttc tatcagggat ttataaaaca aggactctac cccacgggat      120
cgaaaacttt agagactttc caatcttggg gacgtttaag ctgcccattc tggattagga      180
aaaatgttgg caatgactga cattgaatga caaagctgct ttcccttcgc tatcggtcac      240
tgtgaccaag ggagtgtacg cgttgcattc tgccagaaat acaagtcctt gtcgcagaaa      300
tctcatatat ctgaaatcca ttgttgcaat gtcgttgata caggctcgct gttcttttac      360
caaagaagggt gaccatt                                                    377

```

(2) INFORMATION FOR SEQ ID NO:611

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 756 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...756
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:611

```

ggattttgtc tggtacaac aaacacagca atgaacatta acaactacaa atcaaatacg      60
aggagctct acagcaggct gtggagctga cccgtcggac ggacagcagg ccatcgaacc      120
gcagcacctg ctcaaggccg ttatggacag ggcgaaagcc tgaccgattt cctttttgcc      180
aagatggggc tgaacagggc agtatcgcca cggctgtgga caaactgata gagaaactgc      240
cccattatcg ggtggcgaac cctatctgtc gcatgagacc aatcagggtgc tacagcagcg      300
gaggacgcag cgcaccgat gaaggacaaa tacgtctctt tgggcacatc gtgctggcta      360
ttctgactac gcgatgcgag gcgtccactc tgtcaaggat gccggagcca ccgaacagct      420

```

tctgcagtcg	gccatcgaag	acttcggaag	gggcgcaacg	tgaccagtca	gagtgcggag	480
gaacagtaca	tgacttgag	aaatatgccg	tcaatctctg	tcagcgtgct	cgcatggca	540
gttgatccc	gtgatcggtc	gcgatgacga	gatcaggcga	gtgctgcaat	tctctctcga	600
cgcaccaaga	acaatcctat	ccttatcggt	gagccgggtg	ggcaagacgg	ccatagccga	660
gggcttggct	tacaggatcg	tgcgtgcgac	gtgccggaga	atctgcgcaa	caagcagata	720
ttctctctcg	acatggtgcc	ttgatcgccc	gagcca			756

(2) INFORMATION FOR SEQ ID NO:612

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1069 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:612

tcgcggcggtg	tccagctcat	gcttctttga	tcacgccgtt	catatagtct	ctacatatgc	60
acctacgaca	agnccgtact	gcgttttgcc	attcatggct	gggcataaac	gtagtagttt	120
tcttctgtgt	cttgtagcag	ccagcctttt	cttggaaacat	tctgaagttc	tcggcagctt	180
tttcatacac	gtccgctcgt	gttcattctt	tcttacaggg	aaatcgatct	ccggacggat	240
aatatataga	gcgacttttc	gttggccttc	gcttctttac	gagcttcttc	tgaataagga	300
cgtcgtaggg	gcgagatgct	acttgctcta	cgagttcttt	cggggacgta	ctcctttgaa	360
tggttttatg	atagccatat	tttttgtcga	gggaattatt	tgtttacacg	gaatttttcg	420
ttgccgtttt	tgatgaagtc	acgatttgac	gagctgcagc	cagaccggca	ttgatgttgg	480
cttctgctgt	tgagcaccca	tctttttggg	agtgggtgaag	tagcgacctt	cgaattttgc	540
atttcagcat	cgtttgtagg	cttgatgtcc	gtagcatatt	tgaagtcgta	cgctctgcca	600
taaacttgca	gataccctct	tcgtcgatta	cttcttgcca	gccgtattga	tcaggcaggc	660
acccttaggc	atthttggaga	ggagttggca	ttgattgatt	ttacagtctc	gggggtcttc	720
gggatgtgaa	gcgaactata	tcgcagggtt	cgaacagagc	atcgcgagaa	gcaacggcct	780
ttacccttct	ttctcgatat	ccgctgcaga	aacaaattgg	tcgtaagcat	aaattccatg	840
ccgaagcctt	ttgcgatacg	tgccacgttg	cggcctacat	tgcgatatgcg	aggataccga	900
gcttcttgcc	cataagttca	gaaccggatg	ccggttgaag	agattgcgat	acatgaatac	960
gagcataccc	attaccaatt	gggcaacggc	attcgagttt	tgtcccggcg	tattcatcac	1020
gcacacattt	gggctgtagc	agcagccaan	tctacgtggt	catatcccgc		1069

(2) INFORMATION FOR SEQ ID NO:613

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:613

```

gacatgacta tctccgccaa cgtgtcttgc aactctttgg caatatagag gtcttgcgat      60
ttttcaaggt gttgcgacag atgaaaagcg actcataaca cctttatcag cctttcgcct      120
ttctcttctt gggactcttg aaaaatcttt gacattgggt cttcatttgg acgttccgat      180
tcaacacact gctctttaat tgagagcggt ttatttcgct ctcatttctt ttcattggaa      240
tacccttgaa acaagttccc ggatggcaac aggatctacc ttgccgtttt ggtttctgtc      300
atacttactt aatttttnatt gntatacaat tcactgttca ttttttgccg gtatatattac      360
ctgcaaagat gaatacatcc actatctaag attgcccgat aatgggggtg taccagcagg      420
gctacatcct ttcgttcata cctttttgtg ggagatgttc attgatgtcc atcaatacaa      480
tcgttcgatt tatctgcttt cacacatttc cacgttcaag tgaaaagaat caaaggacgg      540
ttcttcgata taccctctcg cttatatcgc tcatcgaatc gtgatattctc gaagacacat      600
tcctncaccg acatattcga cg                                     622

```

(2) INFORMATION FOR SEQ ID NO:614

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:614

```

gtaatagtgg ggcgcattcg gcaggatttg gctaattcca gcgggtttggg ttttggtgcg      60
tatcggatca gatccggaaa ggggctgcac tcaacgcttt cagatagccg aatatctcat      120
cgccaaagga catttcgctc gctgacacgg tatcgctttg cgacatagcc tgaaaaggat      180
aaactccgaa agccaattta accctcctgc tttcggggtt tgcttttgtc gtattataat      240
gttctttcca ataagaatcg atctaaaaaa gatattgctg tccggtaaaa aatgagattc      300
tatcttgaat ttcttaactg cccaagtttt accgatagca atagaaaaag agaccattgc      360
acaataactc ttctatccct tcatattgat cagacagaca caagcattga ttcgacgaaa      420
gtaaggagtg cttcatgcag ttttgcaaac cctcaagtat ggga                                     464

```

(2) INFORMATION FOR SEQ ID NO:615

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 847 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...847

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:615

ggttgttctc	ctgtatccaa	ttcttcgtca	aaaactttga	aagcctcaga	catcctccga	60
gattatagat	gagaatggga	taaaaactta	cgaactctcg	tgcggaactg	cagctcatag	120
tagtgtagta	aaagcaagaa	gtcttgtag	ggctaacacg	ttgccaatag	gagataaaaag	180
aagtggggcc	ttgagaaaaa	aagaatctgt	cggtagagat	atgtactgaa	atagagtgtg	240
acagtgtgag	gatagccatc	aaaagccctt	attaatcggg	atagtccagg	tcttttaggtc	300
ttataagatt	tattaattca	ttggagagaa	tcagatatag	cacgtattga	agtcgcgcttg	360
acttttttca	aaatctccta	tctcataata	tgaactcctc	taccattata	cccaaggatg	420
tatttatcgt	ctaatttctat	tcctgagaat	agtctttaat	cgctttttta	taccatcctt	480
tcttagaata	gcatttcctc	taccatgata	cgcaggggcg	tatttatcgt	ctaatttctat	540
gcctgagaat	agtctttaat	cgcttcttca	tatgatcctt	tctcaciaaat	gcatttcctc	600
taccataata	cgcaggggcg	aatttaccgt	ctaattcatt	gcctgagaat	agtctttaat	660
cgctttttta	taccatcctt	tcttagatat	gcatttcctc	taccatgata	cgcaggggcg	720
tatttatcgt	ctaatttctat	gccttagaat	agtctttaat	cgcttcttca	tacgatcctt	780
tctccaatat	gcaactccta	taccattata	cccaagggtg	atttatcggc	taattctattg	840
cctggag						847

(2) INFORMATION FOR SEQ ID NO:616

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:616

gcgaattatt	acaacgtcca	agttgttcgt	acgtgcagcc	acaacagcct	gaggtaataa	60
gtagtagcat	cgggattctt	tatcccatc	aggatctctg	tgctcggttg	tagtcgcgat	120
tgaggatatt	ggccacggca	gcattgtgct	ctcgggtctta	ccgaaagccg	ctacagcctg	180
ggcataattg	ccctctgcag	atagagcaaa	ccaagagctt	cgcccaattc	gggcacattg	240
gcagcgcagcc	gaaatactgc	ttagcctgct	ctacattacc	ctcgtaaga	gccatagtcc	300
aaggttcata	tcccgtttct	gcattgggct	tcacgcttgc	agcttttgga	accaagtccg	360
agcaccctcc	aaatcacccg	tgcgataacg	cacataccga	tatttggtata	agcacgatag	420
tcattccggat	agatctgagt	accaccttgt	aaatatcttc	cttttgagca	ggagattcga	480
gcagagtaca	tatagagcag	ctcttcacgt	cagccggccg	ggtctggctg	cagacgttgt	540
ctgtatcgtc	tacctagatt	cgacattgg				569

(2) INFORMATION FOR SEQ ID NO:617

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:617

cgacaacagc	cgactgcaca	tcacctatat	gaacgtcgcc	gtaccgtttt	gatgaagaag	60
tgccgcagct	ccttttctct	ctatgccgct	ccggtgctaa	ggtcaagacg	gcttccagct	120
ctaaggtgtg	ggtgccggac	aacaagatca	ccagaaacac	ggtcgcgacg	tgaacctgaa	180
tcctatcgtc	ctcgaactcg	tgctcggtatc	aattacagtg	ctttcaatct	ctatggttct	240
tataccttac	gccccgtgtc	cgcagtggaa	aaggacctga	tacacgcatg	ttcgcacgag	300
cttcggcttt	ggtttctaaa	aacgaaaaag	caatgaaacg	ttttttttga	ccaccgctat	360
actgctgtcc	tccgtgcttg	cctcttacgc	cgcagccttc	cttcggccgt	tcgcgatacg	420
gtgatctgtg	ccggggagaa	accattatga	tcaaggatgg	tgaggaccaa	tttcgaggta	480
attatacagg	gtccatgcct	tccggagata	cgatccgaaa	cgaaaagata	ttcagagggt	540
ctatcgcaat	ggtcgcagca	tcgaacaacg	ctttcggaat	actttgataa	tcggccgaca	600
gggataag						608

(2) INFORMATION FOR SEQ ID NO:618

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1032 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1032

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:618

gcattccact	gtacgggatt	gtggctggct	gtgatgatga	taccgccatg	gcaccacagc	60
ccgtgacggc	catttcggta	gtgggagtcg	tgggcaaact	atatcgacca	catcgcatcc	120
cattcccatg	agagtgccga	aaacgacttc	ttgaccatga	gtccggacgg	gcgagcatcc	180
ctaccgacta	cgatacgggg	cgtttggttt	tagttaactt	tttgatgaaa	tgagcatagg	240
cagcttgaat	tgggctatgc	tgataggatt	taatccctca	tcggccatac	cgccatcggt	300
cctcgatagc	cggagattga	tttgatcaac	gtcatgatat	tggtgatgtt	agatgaatag	360
attcctaaga	ttagaggctg	ggaggggtca	gtccgaaata	cgtattccac	ttccttgtaa	420
tatccggtca	ggcctcgcga	aagagcgatt	ccggggccgat	tcggaaaagg	acgatcaggc	480
gcacgcgagc	ttattgccaa	gcattggtcat	ggggaaaagc	actccttcgc	agacgaacaa	540
tccaggttgg	aaccggtcgt	acatttgatc	agttcgaagt	gaatatccca	tcgttgtact	600
tatatatata	gcggaatacg	ctctcctgaa	aaccgccgaa	gtgagactgt	tgaagacata	660
gatggagtc	ctctcacgat	tgaacagaaa	ccttccatcc	tgacgttgat	cttggtcttg	720
ttcagcacgg	gaggcctttc	cccttatcca	gtacctgcat	ataaagatcg	ttgtcgaagt	780
ggtaatgata	tcgggatcga	attcgctttg	gccctcgtgc	ccatctttga	tggaaaaccc	840
atcctattga	tgaaggattc	gatggctttg	cgttcgtcct	tctcatttct	ttgagcgatt	900
tgatgtcgct	tttcttacaa	ctgcccgaat	taaaacagcc	atacctatgg	ccaaaaccgg	960
cagcaagatc	attattatcc	tttcatcttg	atcagaaaata	ttctcctcct	ctattgcctt	1020
tccgtccggt	cc					1032

(2) INFORMATION FOR SEQ ID NO:619

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:619

tggacaaaga	aaccaaacag	agcctcttgg	ctcgactcg	aagatgatct	tcaggatatt	60
atagaggcta	tcgaggcgg	ctgcccagg	gcttatcaga	gagctatgac	aatagtggcg	120
tgcagggtgg	cgacaccaag	cgaggaggaac	gggtgccctc	ctctgtgtgg	atgttaccga	180
agcggatttg	gaggagccat	tcggctggga	tgcaatctcg	tcattgccc	ccatccgatt	240
cttttaaac	gctcaagcga	ttgaccggca	gctcctacgt	ggagcgatgc	gtgggctggc	300
cgtagcggcac	ggtctggtgc	tatatcggc	tcataccaat	gcgacaacgc	tcgcaggga	360
ctgaatgcgc	tgctggccga	acgcttcggc	ttctgaatac	gcgaccgctg	gagccgctgc	420
aaggcaagct	cttagaactg	gcaccttcgt	ccccacggag	tatgccgatg	ccgtgaggca	480
ggctttgtgg	aggccgggtg	aggccgtttg	gggcattacg	attgctgttc	gttcagccag	540
ccggcacagg	gactttcaga	gctgccgagg	gtgccaatcc	ctttgtggag	cgataagcga	600
attgcaccat	gaggcggagg	agcggatcag	cctcgtatgc	cggcatacag	gcagggtact	660
gtgctgcagg	ctttgcacgc	ggctcaccgt	acgagctgcc	ggctgtcagc	ctgatcccgc	720
tgggccaaag	tcatacctcg	ccggaggcgg	aatagtgggg	gatctgcctt	cgcccataag	780
cgaggggaga	tgctgctgca	catcaaggag	gtattcggtc	tgaaggtcct	gtccattcgg	840
cttgaggagg	acggccgttg	aggcggatgg	ctatatgcgg	cgtagcgggtg	ctttcatgtg	900
gcggcgtgca	gcacaggagg	gtgcagacct	ctcctgacag	gggaggcgaa	gtacaacgac	960
ttcttcgatg	caggggagca	ctgctgctgg	ttacgatcgg	tcattacgag	agcgaagagg	1020
tggtctaattg	ctattttatgc	gcataatatc	gcagaaattc	cctacccttg	ccaccacaa	1080
tcatacgggtg	caaccaatcc	ggtaaaactat	ttgtagttag	ttaattggca	tcattggctaa	1140
agaaaagatc	atcgttgaga	acgaacagag	cgtagagaaa	aattggcagc	actgagcaag	1200
ctgcaaaaata	ccctctctga	aatagtaaga	tcaagactct	ccgtggcgaa	ttgccgttgc	1260
aagtacagga	tctgaagacg	aaatcgccgg	aatgcagact	cgtttgagag	acttcacagc	1320
cggtccaagc	agctcaatca	ggctgtaacc	accgaaaagg	aaaagatcag	taagccaaga	1380
cgctgctgga	gaaatataaa	aaacagctcg	acgaggtgcg	cacaatcgtg	agttcgacaa	1440
ttcttcctcaa	gagatcgaat	ttcaggagct	gagatccaac	tgtctgaaaa	gaagatcaag	1500
gaatacaacg	tcgaaatcca	cagcgcaaga	ccgatatagc	tactctgaaa	gaggtgctgg	1560
aagagcatgc	gaggtgttgg	ccgaaaaacg	cggcgaactg	gataccatca	ttgccgaact	1620
aagcaagagg	aagagaaact	gcgcgaaaag	gcgaagaagc	tcgaagcaag	atcgaaccgc	1680
gcctgctgac	ggctttcaag	cgcatcagaa	aggctcgcac	aacggcttgg	ccgtgggtgcc	1740
cgtagagcgt	gatgcttgcg	gcggtgcttc	aacaagattc	ctcctcagaa	gcagctggac	1800
gtcaagcttc	ggaaaaaatc	atcgtctgcg	aatactgcgg	acgaatcatg	gtcgatcccg	1860
aatgggagca	taaaagctccc	caagagtaag	aggccgggtgt	aggcggtttt	ccttcgggtc	1920
gatgcttcgg	gttcacaggt	gcataagttt	tccgagataa	gttcggctct	cttcggagat	1980
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gccctataag cggaacgtgg tatcgtgcgc ccctgctgg atgccacacg ggatgagata 2640
gaggctatct gctcgaccaa aaaatcacct atcgtacgga ctcttccaat gaggaacgcg 2700
cttccggcgc aatctgggtca gacaccggat catgccgcta ttaaggagtt gaatccgtcg 2760
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aggcaacgga ggattttcac aaacattgag agcaacctct tcgataagca ttcggggaggt 2880
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ccgtcatagt gacagggcta cgtaggcctg accgggaacg aagacacctt ccagatcatg 4560
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cgaacgacca ccgggaagga gaaaggaggt ggactacggc ggaactacggc tattttccg ttgtagtagc 4800
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ggggcagtc aggtaaggct tccaaagcgg tcgattgatc tgatcggtt tgtggttatg 4980
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ttcaggtggt caagtctct gccggcagac gattgtggcg caggttggtc agcaagacgt 5100
aaagcgtaca tctgtctgcc ggtatatgt ttccagttcg aggaaaccgg cggtatgctga 5160
cgaatcacca tggaatgaaa aaagaaaacg ccttatagat tgctgacatt agctccatt 5220
catgcggttt gactaccggc ggagctgcat aagatcaccg ataaacagga cttgtactcc 5280
accgaaagat cgggattgct ccgcacgcga cgaagaacaa aatcgatcag atccagcgtg 5340
tggcacggag cat 5353

```

(2) INFORMATION FOR SEQ ID NO:620

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 504 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:620

tatatccatg	caggatatag	ggctctttcc	caaaacaggc	aatactctcg	catcgggtcaa	60
gaatatgccg	atgtcgtgca	gcatggcagc	ttcttcgaga	agagacgac	cgcctgaagc	120
tcgggatgga	tttcgacgat	acgaagacca	aggccgccac	atcacggcta	tgctctacta	180
aaatatggta	ttggttgttc	cctcagtgtg	gtacttattg	atgatgctga	tcggatccat	240
catttgggaa	agagagttag	acgggaagtg	cccggagccg	ggatcgaacc	ggcagaattt	300
gcatttcattg	gtgtttgaga	ccaacgcgtc	taccaattcc	gcctccgggc	aattgtcttt	360
tcgaatacgc	gcaaaggtag	aaaaataatt	catccgcaaa	tacttcttga	taaaaggagg	420
tctatgggtc	aaaaagatgg	atagtatcga	agagagaaag	tctctcttcg	atgctgcccc	480
gattgcttta	tggcttttct	attc				504

(2) INFORMATION FOR SEQ ID NO:621

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:621

gttcgttcgc	aaaccacagt	gacaggagta	caacccaagc	tatctctcgc	tttgaccaa	60
tgagcaattc	gccaagcgga	tttaccatcg	tgggcttggg	ggacggttta	ttcttaaacc	120
tcaaacagag	cgttattcgc	atctcccga	ttggaggatg	tgtcaatgca	ccttgacagag	180
attgccaaga	tagaaaagtt	cctcatggac	tgatgcgatt	tagcgatggc	gaactatgct	240
atatcctcgt	cgcgatagacc	gaacagggca	aggggaaaag	ctcccaatgg	aagaatgtgc	300
cagctctcag	agcgtctgac	cgaatataaa	tacaaaggct	caccgagcag	gtagccaagc	360
tgatctccaa	gtatagctct	gtgccaaaac	ttatcttgtc	aagtactggg	agcaggtact	420
cttttcgtgg	ctgataggta	agccgatatg	cacctcaaga	attactcgct	ctatgctcca	480
gagggaaatg	atatcaactc	actccagctt	acgacctgct	gtctacggca	cttgatttct	540
gaggatacag	aagaacttgc	attgaccctc	tgtggcaaaa	agcgcaaatc	actcgccaac	600
acttcctcga	agcgatgaca	gcctcaggac	tagatgaaag	tgtgtgacaa	tatttcgctc	660
g						661

(2) INFORMATION FOR SEQ ID NO:622

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 962 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...962

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:622

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ggattgatgg agtggatggc aatgctgttc cactgcccaa tgtattggtg accatctgaa      60
agaccggaat gttttggggc atggtgctct gttcttttag caaatggaat agttgctacg      120
ggaaaatctc ctcaagaaat tgctgaagtg tggctgtcgg cgaagtagat cttacctctt      180
accccttctg ttctgcaatg tcattgcaga tacattggca ccgctcataa caggagggat      240
gcaaaaatag ctgccaacag aaagagaaga gaggactaca tcgagactct cggaaagggc      300
ctagacctta tctctacgtt attgttgcta ccggcaatat atagaagacg ttgttcaagc      360
acaagcagct gctcgccaag gagccgatat tatgccgtaa tacgtactac gggacagagt      420
ttgctcgact atgttcctta cgagctacga cagaaggatt cgggggtact tttgctacac      480
aagaaaactt cgtatcatgc gaaaagcctt ggatgaggtt ggagaagagg ttggtcgatt      540
atcaggctct gcaactattg ttcaggctct tgcattgccg aaatagccta atgggagcac      600
tcgaaggctt ggatgtaatg ctcaatgatg ctctctagga attcttttcc gagacattaa      660
tatgcaacgt actttggtgg atcaatcatg agtcgtgtta tcaatggatt tgccggcggt      720
atcatcaata ccggtaggat aactaccta ccactgctga tgccgtagaa gaagcacata      780
ccgtcttgcc tcggatttga tcaatgagca gctggtctct acagccggat tgcttcagaa      840
cagatggggc ttggacatgc atttgaaatg gatcccatgc tcagaatgga ttccttttcg      900
aattggctca agcacaatg accagagaaa tttcccaaag ctccgcttaa gtatatgcct      960
cc

```

(2) INFORMATION FOR SEQ ID NO:623

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:623

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gaactcacgt taaagtagat tatagaaga accagtaaac caattgtaga ctatcccggc      60
ccaactgtca acttttttca gtacacgtca aacttttcgt tttggcgcg ggcgaaaaa      120
attctcacgc cactgcgaaa aaattctgcg ccgcttttcg ggaaaacacg cgccacaatc      180
ggagcgtttc tggttctatt tccgaggctg tcagttgtag actttccgac aatgggtgtag      240
ctctactcct ccatactaca ggctcgcca acagacaagc acgacatccc cacaattgcc      300
ctcgcatcag actgatgaga tcgtgactgt tgatgcagga acgataaaaa ggaatttttt      360
tcggattcat ttggcgcata acaaaaaaag caacctttgc agcgtcaaaa tcagaaggag      420
ctttcctttt gatgggtatt gctccgtagc tcagttggta gagcaaatga ctcttaatca      480
ttgggtcggt gttcgagcct caccgggtc acaaaccaat agcagagggc tgtgttgaat      540
agtttttttg acacggccct ttaacttttg gatcgggggt cgcctttttg aaaggatatg      600
ggaaatatct gtcaaagcc ga

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(2) INFORMATION FOR SEQ ID NO:624

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 930 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...930

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:624

cagtcctttc	ctggtcgggt	tcgtttcgcn	tgaacgaaga	ccgataacttg	agtttgtttt	60
ctttcatttt	tctgtcgttt	ttttctaaat	ttcctttggt	gcaaagggtac	atacgaacaa	120
gtattcntga	gcgatgcaga	aaaatgaaga	tgaggaataa	aaacctatga	cacagttggt	180
tacattcaat	tcgtaaccct	ttttgctttt	tccctgatgg	gttacgattt	ggtaacggaa	240
ctcctccgtt	tgatgctcgt	tcttgcttac	cctcaaaaata	gtaagaaaat	gctaatagata	300
ttattttcaaa	tagttacatt	ccctgcattt	ccctctgttt	ccctaattct	taatgactga	360
ttatgcccac	aagatgagct	tagattttacg	cagattgatt	tggagaggta	ctcgatcat	420
atagacaaca	aggcaagcca	cgtgccaaga	tgctcaatga	ctattaccag	aagttcgatg	480
cacagaaggg	acgcagttcg	ttttctctga	tttagggact	tataagcccg	gaggagaatc	540
aatgtctatt	cggagatcaa	acgtaagttg	gtagaagact	atcacatcca	tcgcatgaag	600
tacgctttat	ccaagagtgc	aagaacgaga	aagccaaaaa	gcaatggtgg	acgccatgaa	660
ccgtggcgac	atccgcatca	tcttcgttct	acttcgatgt	tgggaaccgg	ggtgtcaatg	720
cccagcaacg	tgccctggct	atccaccacc	ttgatacacc	tttggcgctc	ttcggatttg	780
gagcacgcaa	cgggcgttgc	cgtgcggtaa	gggcaatatg	attgccaagg	agttgcggtg	840
aacaagtncg	atgtgattat	ctatgccgta	gaacgctctc	tgatagtata	agttcaattt	900
gcttcacaca	agcaagttgt	tcataaatca				930

(2) INFORMATION FOR SEQ ID NO:625

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2631 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2631

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:625

agttgtaaat	cccccttgag	gagctgcttg	cacgagctcc	tcaagggtgt	tataccttat	60
cctagagatg	aggacataat	tatccccggg	gttctgtaaa	attaaaggcg	atgctttcaa	120
gaatgttttg	agtatgggtc	ttggcaatcc	ccggtatcga	catcgctccg	catgaaacca	180
ccggcgaata	ctgccaaggt	gcgttcgatg	gtgctccgta	tctccacaag	gcttgcatcg	240
acaagaccct	ttccctgacc	gaaatgtgat	ggcgggaaag	ttgtttgtta	aactcgccaa	300
tagtttgtcc	atgagcccca	actctgtcag	tgccgaacga	aatgactgat	ggtgctgtgg	360
tcgggagata	cctcttccat	agccccaaga	atgggaaaag	gtgattgaat	cattgatgcg	420
ctcctccaaa	gcacaatcac	taggttgtag	catgtcttcg	gaagcaacat	cttgaataag	480
agaatcacgt	ataagccggg	gcgccgatgg	cattttgtcg	cttcgtgtat	ttcttggtgt	540
cagcgtcctg	atcggacgcc	aatcgataag	cctctcaacc	tgattgagaa	gtcgttttgt	600

gctttgcat	aacgctttga	aaggagtgcg	tctgcaatgt	tacatgctca	tcggtattct	660
tggattggta	tgccatggga	ggaatatatg	ctgtttttta	tgctcaaata	tacaaaataa	720
cttcctatta	tacaagaatt	aacaaataaa	atgcaggcca	attgccgtgc	aaaggtctca	780
aaagtgaatt	aacttttttg	actgtcagct	tatttagttc	acatcgga	gatttgaaag	840
tcatatccat	ttagccatat	ggtaggttag	cctacagaat	aatttactta	ttaatcggtg	900
ttgtggagat	gcatggctgg	ctataccttt	gcaatgtaat	agtaacacat	ttgtttagcc	960
aaagccattt	ggtcttaatg	tgtaaccatt	ataaaagtga	taaatcgatc	gcagtcggta	1020
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cgtcttgtat	agtcttaaaa	aacaaatcca	ccagcaagac	cggccttctg	gtggataaaa	1140
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tccctaccac	aatgaggatt	tactcgccga	agcaggctgt	tcggtcatca	gtttgttgaa	1260
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ttatttccgt	aacacggctg	aagaaaattgc	gacgagcatc	ttccttctcc	atatcgattt	1380
ggcatagcgt	tcgagagcat	cctgaggaac	ggcggacatg	catactgagc	aaactgattc	1440
ttggctacaa	tgatggcgaa	attcctgacc	cttgccggcg	aaccacgatg	tcgttcttct	1500
tcaccagatc	ttccttgata	catggaaaagt	cagatccttg	atcatggcag	ggtactgctt	1560
ttccagtttt	catcactcca	ctccgtgtgc	gacagtttca	gccagcgctt	cagcaggcat	1620
cggggaactg	caactctcct	acctgagctt	ccaattcgcg	gcgcagtcga	tgagaaattt	1680
gtagtcgctt	tcggccgtga	attgctcgcg	aacacttcgg	ttaccttaac	acgcaagtcc	1740
gcttcgtttt	tgatatccgt	ctcccgccga	aagcctgttt	gaagaactct	tcattcagtt	1800
cagccttttc	atgcgggaga	tactgctgat	ttcgaaagaa	aagtcacctg	tatgctctcc	1860
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ggttggccat	cctccaatcg	caaagacgcc	ccttcaactac	atcgttggca	gtcacttcac	2100
cggcttcacc	gaatgtccgt	agctggatct	catagattcg	atctgccggt	cgatcactcc	2160
tctgtgggtt	ggatcgata	ataaggtaca	cgaatgctct	tgtctccact	acgtccacca	2220
cggggctgag	agccaggctg	aatacgaatt	caaatcgta	gtggtatcga	agtcgtactc	2280
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taacgataga	gtcacgaccg	actacgcggt	tgatctcctc	tgctttgaca	cccttaccgt	2400
aattttcttg	atcataccca	tcggtaccat	ccccttgccg	aatccgggga	attggcacgt	2460
tggcgatag	tacgcagagc	tttttccact	tcgttgggcaa	atcagccttc	tcgattgcta	2520
ccgtagcaat	ggcattgacg	gcateccgtt	cttgatcgat	acgttcattt	tcttctttat	2580
tatcttgag	ttattgtttt	ttggctttga	aaaaccgcgt	aaaaatgtcc	g	2631

(2) INFORMATION FOR SEQ ID NO:626

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 266 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...266

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:626

aatagctctt	tgggtttag	catattcaag	tatttataga	gacctttgcc	ggcaattggt	60
gtgtattttg	cttggttaatt	gattgtatag	tagggagtat	tttgtatatt	tgagtattaa	120
aaacagcata	atattcctcc	catggcaacc	aatccaagaa	taccgatgag	catgtaacat	180
ttgcagacgc	actccttcaa	agcgttatcg	caaagcacia	aacgacttcc	tcaatcaggt	240
tgacagctta	tcgattggcg	tccgat				266

(2) INFORMATION FOR SEQ ID NO:627

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 593 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...593
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:627

```
ccattgcaat gccgatagaa cttgctttca gcgagcattt atatacatga tagagacttc      60
ggtccctttg taaagctctt tgacaaatga ttaaataaaa tgaatatcta cactcagctc      120
atatattggc ctttttcgac ctgcgattat atacaaacca ttttcaatca tatataaatc      180
gaaaacactt aatgagcttg ttacacggga tttttattga actcttttgc tgcagagctg      240
attctagtgc ctttgggaaa gatcaaacct ccggtatatg gacatcgagc aaacgaaatt      300
tccccaagtt tctttcagag gtggatactt gaggttcgca gagctcacat gaagcactcc      360
ttttttcgtc aaatcaatgc ttgtgccgat agtgagaaac aagaaatgat tgtcggctga      420
ttcttgcttc ctgcacgatg cggacgcgat tgtcaactga ttcttgcttc ctgcacgatg      480
caggacgcga tgtcaactga ttcttgcttc ctgcacgatg caggacgcga ttgtcagcta      540
ttcttgcttc ctgcacgatg caggacgcga ttgtcggctg attcttgctc ctg          593
```

(2) INFORMATION FOR SEQ ID NO:628

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 467 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...467
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:628

```
ccggtgagta ccgtttcgct ggtggcatgt accatggctt ctaccatatg ccgtctttga      60
ggaaactggac gccgtcgatg cttgcacccg gtatggtgtc tgctcgaacg tttcgggggtg      120
catgaagttg tatcccatct cgtcctgtag aggtactgat agggacgtcg ttctattctg      180
acctcttcga ccttgagccg ctgttcagg tcttatcgag gatacgtcct gtagccacgt      240
tcttggtttg gtgcggacga aagccggggc tttgccgggc ttgacgtgaa ggaatcgacg      300
atgaagtagt attgtccctc aatttcgaga cacatgccgt tgcaaagtct gccgttgtag      360
ccatttggtg ataatcgctt ttttaatgat gagaaagggg tagggggcgg ttctcgaaat      420
actgccgatc cttcgggata tggcaaagcc tcctgttgcg gaggcaa          467
```

(2) INFORMATION FOR SEQ ID NO:629

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 4442 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...4442
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:629

aggctcgctc	ccctactcgt	caagcagcaa	ctgggtgggt	gcatcaaccg	aaaacatttg	60
caatgctgac	atccgcaatc	gcataaagaa	aggggatgac	aagagatcgg	cacgggcatg	120
accaaaatat	agagcagata	gccggaccgc	cccggagatc	ctcctgcagg	atttattcca	180
cgtatcggac	aaggacaaga	gttgatcgct	tcgggcatca	acaccgtttt	atacaacgaa	240
tggaagagcg	ggatctactc	ggtcgtgccc	aatggatgaa	gctaaccggc	atgctctcag	300
ctgcaatcgt	cgtgctcatg	aggttttcga	acagatagaa	tcgagtatgc	ggaggctcgc	360
aaattgggtg	cagaaaaagac	cgataccatt	gcatcatgta	tgggcaggac	tataatggga	420
cttggtacct	gcccggagag	tcagctacag	tacagccatg	ttcagagatg	cacgagtatc	480
tttcgactat	cagccggcaa	agtcagtagc	cagccgtgta	gtttcgagta	tattttcagc	540
gccatcgtca	tgccgaaatt	tggatatgta	cgatgatggg	aaacatcaga	caatggatga	600
atttctcgct	ttgaacgaac	gctaccgaca	tttcgatcca	cccaaaccgg	taagggtttac	660
atcgatcgca	agcgcgtgaa	cgagaagggg	gcaatgacta	ctgggagagc	gggctgtatc	720
gtcccgatct	tttgccaaag	acatcatcaa	gatcaccggg	cggagctgc	tacccgagta	780
cgagcttcat	actggataga	actgaagagg	ccatgaagcg	atcatcattc	atatcggcac	840
acttctttta	ctgactgcca	tggctttcgt	gaccgacctc	attggggcag	tctggatata	900
tcgccggccg	acgtgctgca	agctctgacc	acggatcgga	aatgcaaaca	accaatgact	960
atgtcattcg	caattttccgt	tgccgaaggc	tctgaccgct	ctctttgccc	gtgccggcat	1020
atccatcgcg	gtctgcaaat	gcagagtctc	ttccgcaatc	ctctggctga	cacctctatt	1080
tggggatcaa	tagcggagcc	ggtcttggag	tagccctgta	catcatgcat	tcaccatcat	1140
acccggtctc	agtctgcact	ccggcacggc	cgacactggg	gcgtagctac	ggcagcctgc	1200
ataggttcca	tgtctggtact	tctgccatct	cggctgtagc	agcgtggctc	agagatatgg	1260
tctcggtgct	gatcttggag	tgatggtcgg	ctttttggcc	agttcgttta	tatccattct	1320
ccattctttt	ccgacaatga	aatgctcaaa	gggtatctga	tctggtcttt	cgcagcgtgg	1380
ccggcacgac	atggcgacag	ctatccctga	tgatccccat	ttttcggggc	gtctcttctc	1440
gtccatgctg	atgcccgaag	atatgaatgc	ctcaacatag	gagagaacta	tgcctgtagc	1500
gtaggtatcc	acgtggagca	gagcgaatta	ttctgatcgg	catcacgagt	atcattaccg	1560
gaacgattcg	gctttttacag	gccctattgc	ctttttgggg	atagccgtac	ctcactttcg	1620
cgcatectat	tcaaaaagttc	ggactaccgc	atactgctcc	ccggcacatg	ctgtgcggtg	1680
ctctgctgat	gctcgtgtgc	gacatgatca	cgcagtaccg	ggcaaaggct	ttgtattgcc	1740
gatcaacgcc	atcacctcga	tgatggtgct	cccgtagtaa	tcatgacgat	cgctcgaac	1800
cgcaaaaagc	gttaatcttc	aactgaacag	gcgatgatcc	ataccgacaa	tgtgaccctg	1860
acggactatc	taccggatac	cgaagcaaga	aaacggagcg	catcgtatcg	agctaatecg	1920
cctttccatg	cttaattggcg	aactggtaat	gctgatgggt	cgaacggctg	cggcaaatcc	1980
acgctcatgc	acaccatcgc	aggattactc	cacctatttc	ggggaatatc	accatcgag	2040
gacgcgacac	acacgggtccc	gcatgagaga	gaaagccaag	atgctcagtc	tggtactgac	2100
cgacaaaatg	cagcgacgaa	tctgactggt	cgggatattg	tcgtcatcgg	acgctaccct	2160
acgtcaatta	tcggggtagc	ctgaccgcaa	aggacaagga	gattggaatg	aatcgctcat	2220
agcatgccga	ctgatgggat	tcgaatcgcg	ccaaacgggg	aattaagcga	tggagaaaaa	2280
cagcgtgtaa	tgatagcccg	cgcttagccc	aacagactcc	cgtgatgctt	cttgacgaac	2340
ctacggcaca	cccgacctgc	caagccgtct	ggagggtgatc	atcatgctgc	gcgaattggc	2400
agcaaaaacga	acaagagtat	cctcgtttct	acccacgaaa	tggatctggc	ctgcaatggg	2460
cggacacggg	atggctgatg	aacagccaag	gggagatttt	cgtggggcac	cggaggattt	2520
ggtactgaac	cactgttttg	aaaaagtatc	ggcaacgaaa	ctctttctct	caatatagac	2580
atcgggagcct	tctccgtaaa	cataaaacgg	ctacacctgt	ttctgtagaa	ggacaggggtg	2640
ctgcctcaaa	tggcactgta	gtgctttgca	ccggaatggc	tatgtggaat	ctgcaatgcc	2700
tccgaccgca	aaatcacctg	gggagagggc	tgtgtgattc	tgcagagggc	gattcctcga	2760
aaagcttcga	ctccatcggc	tccttgctac	aaagctgcac	gctcaccacg	aatgaatgct	2820

tgtgaaacaa	acaattatat	gcaaacccta	cgatagattt	cgacaaagaa	acgcctctgt	2880
tttttagtcc	ttgggcgatc	ctctttacca	cttgaaagaa	agtatgatcg	ttcgcttcgc	2940
ggacgcagag	gagtcgtgag	cacctgcaat	ctcaacggcg	gctaccgaga	gacctccgct	3000
acgccttcaa	caacagttgc	gggagggacc	ccgacgtata	gccaaacgct	ctgtagggat	3060
gcgaggaaaag	accatgatcg	aacactagcc	gccttagcgg	aagaattggg	tctgcctctt	3120
gacaaaacaa	cgggcagggg	accgctgctc	tgatcgaaaa	tacggcgacc	tcctctcgcc	3180
aatacacgga	gtaacggtca	tggcggttgc	cacggcgagg	atagatgtaa	atggggacgc	3240
gcaggagaac	ctgccgcata	caacgaattt	acccaaacag	accgattaag	ccgggtacca	3300
tcaacgtatt	cctgttcac	gacgcctcat	tgatgcagga	acactgacac	gcgcctcgt	3360
caccgccacc	gaagcgaaat	cgcagccctg	caggaaactga	tggcaaacag	catgtattca	3420
gaagatttgg	caccggttcg	ggaactgatt	ctctgatngc	catctgtaat	aaggagtcca	3480
gatagtgtct	cagaatagt	gcaaacacgt	gcttttgggc	gaaatgatgg	ccaaagcgtg	3540
aaagaggcta	ttacggaagc	cttatcccga	cagacaagat	gacccctaca	cgtcaggcct	3600
cgatcgaaat	gcagacaaaa	cgctacgata	acgagagaag	cgatcgcttc	cgaaatgcctg	3660
cgctgtatc	cacattgaaa	aaagagggtg	tagaagcagg	aatcggcggt	atcgatcgag	3720
acaacgtctg	gtagccgcag	tggctgccat	tgctcattta	tgcgacaaa	atcctggcaa	3780
atcatctcgg	acaagagcat	gacctgcaca	gccgaaaaca	tatgcatacg	atactttcgg	3840
agagaggtat	ctccgaggag	gcaaacagaa	agacattgta	tgcggacaag	atgcgccggc	3900
atatcgtaaa	gtgctgtccc	ctgcctccat	actcttgcaa	gaataactcca	caacagaatt	3960
attcattcac	actttaacat	atcaataatt	atgaaaaagt	ttttcttcgc	gctactatga	4020
ttggtatttc	agcgcaggct	tttgccaaga	cggacaacgt	cccagacaatt	cgctacgagt	4080
acacaatctt	cagaccgtca	cggtctattc	tacacgacgg	ccgtacctct	gaaaaagata	4140
ccggccaaga	tggaactcat	ctcatgcgca	acatcaagca	gtccggcctt	aacaacatga	4200
ccgacatcct	taagcgcaaa	gttcgctcga	tgatcatacaa	tacccgggct	ttagttcgaa	4260
catggtatcc	gcggtttcaa	gccctccggc	aagtatgtaa	ccgtattggt	aacggcatcc	4320
ctgcgggaac	ggacaatatc	tctacgctca	acacgagcaa	ctcgaacaaa	tcgagatcct	4380
caaaggcccc	ttctcttcca	tctacggcac	aatgccatgg	gcggtgtggt	gaacattcat	4440
ca						4442

(2) INFORMATION FOR SEQ ID NO:630

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:630

cgtaacggct	catgacttat	ccacacgacc	ggccgtatcg	acaagtttgc	cttgccctgta	60
agaacggaat	gcgacgtatt	ggagattttcc	actttgataa	agggtaagta	acgccgtcca	120
tctcgatcgt	ctccttttgc	tccatcgaga	gcgtgtgata	aagatgtctt	cgttggacat	180
atcctttaa	accaccgacg	ataattttcg	ggatgaatac	cttttttcat	tgctgtctat	240
ttagtttgtt	cttggttttcg	ttcgctattg	acgtactctg	gattggtaac	cgttgtttat	300
aatcggatag	agattttccg	acggcaaagg	tagggatatt	atttacttgg	caagcagtta	360
ggccgagtc	aaaatgagtt	cgatcattca	tgcggacatt	catgctctta	agataagcag	420
gaggggacgc	atgctcgtgt	agtcgatgaa	tcgtgtgtcg	gatttacgaa	ccgcaatcgt	480
tgtaattgtg	cgcgagaatt	ttgaaaaagt	ggaacgtaaa	ttatttcggt	ttggttcgaa	540
ttttttttgt	tcccgaacca	aaataaaaaa	attc			574

(2) INFORMATION FOR SEQ ID NO:631

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 796 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:631

ggcagatgat	gatacacggc	aagcgcaaac	aggctgcggt	ggagaccatg	aggagaccgg	60
ttggccggtg	ctattcagtg	ctctcaccac	ttttgttggt	tgctttcttt	tctggctatt	120
cccgctcgta	cgatgcactt	tatcggttcg	ccacttctgc	cagtgtcttc	ttctccttta	180
tgatcgccat	tacggtatgc	cgactacctt	gagtttcggc	aaagaccatc	agccgaaagc	240
atcaggcgaa	aagaaggaaa	gcacggctg	gatcgatggc	tcgaagcctt	cggctcctggg	300
tgttggatca	tgagaagtct	gtctgggggtg	cttttatcct	tatacagtgg	tgatgctctt	360
tggattcttg	aaaatggaga	cggcattcga	catgaaagaa	caatggggcg	acggatagaa	420
tacgtcagca	atatccttgc	ctgagcgaaa	gcgaattggg	ctctctttat	tcctatgata	480
ttatgatcga	ttgggagagg	agggaaaaggc	caagaccccc	gaagcacttc	gtgctctcgc	540
agcatcgctc	gccatgcaga	ggcatattcc	cttaccaagc	gtaccactcg	atattgaata	600
tcctcaagga	tctgaaccag	accttgacag	atggggacag	gcatactata	gcattcccgg	660
cgatgcggag	gaaagtggca	ccagcactcc	tcctatatga	gaatgcnggg	ggggagtga	720
gcccgaagc	tggatgactt	acgaatacca	gaccggttgc	taccctgaaa	gttgggaaaa	780
tgacctcttt	accaat					796

(2) INFORMATION FOR SEQ ID NO:632

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 393 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:632

gccgccgatg	cattaagagc	agaagccaag	gcttccgtac	tgattacaca	tcagcgattt	60
tgagatccgg	aagatttatt	ttcttccctt	ttactttgct	tcgaaggtta	agaagagttc	120
actcttgctc	atggccggct	tataaggaaa	gagaatacga	gctgctgatt	gccaccattg	180
tcatagctga	ctacacctca	ttgccaagta	ctttttctcc	ctgaaaaagg	aatgaaggtc	240
cccatattca	cctgtagcat	agcgacgac	aggcttcact	gtaagttcgg	ctttttattg	300
aaccatttgg	caggaaaagc	gatactcacg	gtcacaggca	cttgcttccc	acgacttcag	360
tggttggtgg	tcagccttta	ccaaatcggc	agc			393

(2) INFORMATION FOR SEQ ID NO:633

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 289 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...289

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:633

tgacaatccc	tcattttttc	aaaggtctct	atatcngttt	tactcgtcgc	gttcgattgt	60
tttctttccg	gccggggaaa	gtttccccga	cagccgacaa	aataattttt	ccggccggaa	120
aatctctatc	caaagggttc	ggatatgata	caaagccttt	gaatacatat	ccgaaagctt	180
cgtttatata	tccgaacctt	tgaataaaga	attggattat	ggcttttnca	acttttccgt	240
actgcgaaaa	aacttttttc	ggccgggnac	gattatttct	ttttataaa		289

(2) INFORMATION FOR SEQ ID NO:634

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:634

acgatcggca	gagagaccag	cccgcacgaag	aggatgggca	tcaggatcgc	atcacgagga	60
aggatttctt	tcggacgcga	atcatgtatt	cgcgttggtg	atagtgttaa	tggtgttcac	120
aacgtcagtg	tgtatcggtg	gtttcttttg	tgcttggtac	ggattctctt	cctctacgcc	180
gtggcctacg	gtcttggtga	tatgtcgtgc	atgctcggga	tctcttcgta	gaaggacacg	240
agccgaccga	ctcgggcagg	tcgcgcacga	gatcgcgggt	gtgcgccgtg	gttttttgcg	300
cactctcagc	ttcgtcatgg	aaccggtag	ctccgtcttc	tccgtatccg	gateccggcg	360
aggtagtctg	ccggcagctc	gccttcgact	acatgcggat	aatgccgagg	ctgttctccc	420
tacgcacttc	gcgcacggct	cgtggagcac	tacgcgcgat	ttgttgatca	gtgcgaagtc	480
gtcgcatact	cttccaccga	ctgcatgttg	tgctcgcaga	agatgacggg	acgctccttc	540
cggccagctc	cagtatttca	cgcttcagca	ggtcggcatt	gaccggatga	atccgctgaa	600
gggttcgtcg	aatatgagca	attccgggtc	gtgaatgcgg	tgacacagaa	ctgcaccttc	660
tgctgcatcc	ctttggacag	ctcttcactt	ttttgttcca	ccaaggcatg	atgtcgaact	720
tctcgaacca	gtcgggagcc	gcttgccgcg	ttcgtgcttg	ttcactccct	taagttgcgc	780
tagaagatgg	cctgctcgcc	cactttcatc	ttggggatca	gcccccgctc	ttcggcaggt	840
agccgatgcg	gcgaatgtct	tccgcctgca	tgggatggcc	gtgaagatca	cttctccttc	900

gtccggggagc agtaatgcgg ttgatgatac gatcagactg gttttgcccg gcttcc

956

(2) INFORMATION FOR SEQ ID NO:635

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:635

```

ctttggggaa agaaagaggt aggaaaacgg ctatcaggtg atcaggaaaa agccaagcgt      60
ttgcttcttc cttacctctt tatggggacg gtggcattct gcctaaagtc ctactgagtg      120
cctacacata ccacccgatg aggcctcttt ttcggatatg tcagcagctt tctttttccg      180
gcaacgaatg ctattccttt ctgtggtttt tgccctgctt gttcagtcta ttttgccctgg      240
ttgtttttat cctcggaagt ggatggaggg accgaagatt ttcggagctt acctatcgcc      300
tgccttctgc atatagtcac cgaatacatc cctgtggcat tcgggatgat cctttctgta      360
ttatagcagc ctttaacaat tttcactact tcttctgggt atgatgttat accgctattc      420
cgatcgata gtttccagac ggtatcggtg gccctgctta tcgctttcca tgtggcactt      480
ttctcccggt ctttatgccc gagcagtcac cgctcttggg ggtattgaac tggctcttata      540
taccctgttc atcggtgtcc tttatggcgt gtcggtaaaa atcggagaaa ggtgatgcct      600
gtcccatgtg ttcacggtat aggggtgtac agctatccat attcattttt tcatggttcg      660
tgctggtcgc attgagaata gtccttatga ccgctatgag ctgagcacca tgatgatcaa      720
tgagagctatt gccatagttt catagccggt ttgttcatac cgctttacct gtccaagttt      780
ttggcaggaa acttccgggt tctctcaagc cgctggtcgg attgtaagca gaccagagga      840
gctgcgcaag aagggaaagt taaggttcga acttacgaag agaaaactat cgataacgaa      900
cggacttaac gacatgattc cggccgaatc aggaagcctc gcaaatagcc atagacacgg      960
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gtgtaaaccg cttcacgaac actatccgtc attnccggatc gtatatatta gcaaagtgac     1500
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```

(2) INFORMATION FOR SEQ ID NO:636

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7032 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...7032

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:636

atccccgccc	gcatgagcag	ccagtctata	ggttactaca	ccttcacgtc	atcttcgcgg	60
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tatggcctgc	ga					7032

(2) INFORMATION FOR SEQ ID NO:637

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...590
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:637

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ccttcgccc catcggaat atgggcacat acggctggca gtatgccgat ggataccctc      540
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(2) INFORMATION FOR SEQ ID NO:638

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 310 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...310
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:638

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(2) INFORMATION FOR SEQ ID NO:639

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2335 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2335

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:639

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(2) INFORMATION FOR SEQ ID NO:640

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1010 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:640

```

gggcgggtgg ctatccgtct cctacaacct cgcggcggat tattcctggt ggaaacggga      60
gccaacgctc atcgccggtt gcccgaatac cggcatacgc ccgtctgacc ttgctgccga      120
tcccccgctc gtcgctgcgc atggcagcga atataacgcc acgactctgg agccggggca      180
tgtacatgag gatgtttttt cgactgcgaa gcacgctaca gtttcgataa ggtttgggaa      240
gtatcgtttc gatgcgcaat ctgttcgata gtcgcatgta tcttatccgt caacgacgga      300
gtacaacgct ttttccaccg ctatcccatc tcgcggtcgc gaatgcttgc cacagtcttt      360
ttccgctact gattttcttt attcgggata gcgcgagga tcgtattgag attctttctg      420
aatctcggtg cgatttttct ttcggcgagt aatttcgtcg acgaaattac tcgctgcagc      480
tatgcaaggc aaatcttggc aacaaaattc atagaatccg acctgcaaac atgaatttcg      540
caacaaaatc gcttcctgca agctgcaaac atgaatttcg gcaacaaatc gcttcctgca      600
agctgcaata agcaattttg ttgccaagca gacctttgca agcttgacgc aaggaatttc      660
gtcgacaaaa ttacacaatg cataccgcgg caaggaattt cggcaacaaa atcatcaaat      720
gcatatttca gccaaaattt cgatagagaa atttcaaata catgctttcg gcaatcaatc      780
tttgacataa aatttccatt gccgaacggc gataagaaac tttgccaccg aagtgatatg      840
tattccccctt aatcttttatt ccaatatata tgattggcag gaaatagttt catccactaa      900
attacaataa tcgtatgact gctttcggat aagcttaaga caagaaatat ataattctat      960
cggttttcta tccacaacaa attatttact acttttatcg aagcaaacga      1010

```

(2) INFORMATION FOR SEQ ID NO:641

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 540 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:641

```

caggagacca gcgtaggcct acggtgctca ttacaacatg ctaattatcg tgcattatgg      60
ccaattaaag taaaacgaga acgaccttag aaattttcct gttttgcgtc ttcaaaattc      120
gtttccccc ttgtttggga agttcagctc aatagcagat cgacgacctc gactcccctt      180
gtcgtatttg aagcatattt cttataatag aaagaagaca cgtgaagatg gtgatgatgt      240
cattttcagt acacatcgct tttctttatc tttgtagagc atggtttcga atttgaccg      300
gcttttgaaa tcagataact ctaagaaacg tttcaaagaa ctagttattc gaatcgatta      360
cccctgtgca atgggtggctg atagcaggta tctgctcttt gtttttgaga tttttacccc      420
gggtttcttc ttggcttgat cgtatgggag cttttgctgc cattataccg gcggccttgg      480
ggttgtctat gtgtggcana ccggtttttt atcgtggcct cgctgctctc gctcttcctc      540

```

(2) INFORMATION FOR SEQ ID NO:642

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 896 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...896

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:642

gattaagaac	caagatgaaa	aaagtatttc	aagatcttcc	tttgggggtgt	gttggccggt	60
gcagtgatcg	gcacttttat	gttcctctgg	caaaagtcaa	agccaaaccc	aaagagtacc	120
aaatcgaaac	ggtaaccaag	caagacagat	cgagagcaag	acggtgatca	ccggtacggt	180
agagccgcgc	gacgaatgct	catcaaacca	cagatgaacg	gcacgtagc	cgaactgctg	240
cacgagccgg	agacgtggta	cagagcggag	acgtgatcgc	ccgcctcact	gtcgtccgga	300
aatgatccag	cttagtcagg	ccgagagccg	tgtccgtatg	gcgagatttc	atacgagcaa	360
ggcaaagaat	cgtatgcccg	cagcaaagat	ctttcgacaa	atcgggtcatc	gctctcgaag	420
agttcgaggc	agccgaggca	atttcgccaa	aatcaaagag	gaactgtcca	atgcgcgtga	480
agccatggag	tcgtaaaaga	aggtgccagc	agccgtacag	ccaaacagag	caatacgctg	540
tgcgcagcac	ggtaacagg	aagatcctga	atgtcccgg	caaagtggta	attcgggtcat	600
tcaggccaat	acgttcaacg	agggaaacgac	catcgctcga	tagcggatat	gaacgatttg	660
atthttgtcg	gcaagataga	cgagacgaag	tcggtcgc	tcgactgggc	tctcccatgc	720
gcatttcggt	gggagattgg	ggaaagaaa	ttttcctgcc	acagtagaat	accttgccgc	780
caaggaagta	tcagtaaacg	gagctgtact	gttcgaagt	aaagcttcg	tactattcca	840
agcgacagag	taatccgtgc	cggctatagt	gccaatgctg	aaatcgtact	cgaagg	896

(2) INFORMATION FOR SEQ ID NO:643

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4002 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4002

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:643

gccaaaggat	gggccggcgg	tattctcttc	aatgagcaag	cgaaagccag	ctggatcggt	60
tcttcgcacg	acccgatacg	ctcagcctcg	gtatctgcac	ggctgccagc	tgatggccga	120
gttggaaactt	ctataccccc	aacacgactc	aagcacaagc	ttgtccacaa	cgaatcgca	180
aaattcgaaa	gcacatcgtc	actctcgaaa	tcccgcataa	cgactccatc	atgctcgga	240
atctgcccga	agcaagatcg	gtgtatggg	tgctcatggc	gagggtcggt	tcagctccc	300
tacgaggaga	aagcctacca	tgtgggtggc	aagtacgaat	acgcggctat	cctgccaatc	360
ccaacggatc	gccacaccgc	atagccggat	tggcagcgcg	gatggccgcc	atctgacgat	420
gatgccacat	ccggagcggg	gatattcccc	tggcagtgcg	gttattatcc	cgaatcacia	480
cgacacgaac	tcagggtgaca	ccttggtatg	aggctttccg	caacgcttac	gagtggatac	540

caagcaggtg	aaaaatggat	gatacgtcgc	cccaactgac	agaggagcac	tgcttttccg	600
catcgcactc	acgcatgtaa	aaggcgtggg	tagcgtgtgg	caaggcagct	gcttttcggct	660
atgggcagtc	ccgaagccat	cttttcgaca	ggaaggagct	ggtacagagg	ctaccgaaaag	720
cacctcgccg	cctgcccgat	ccatcttttc	tccttcgggtc	atggaggaaag	cacgcccgaag	780
gttgatcaag	ccctcaaagc	cgggtctgaat	atgtattttca	tcaccgatga	taatatcctt	840
accgcttgaa	agaatgtgtc	gacgccccca	tcctttcttta	ttcaaaggca	atgtcgatct	900
ctcgccacgt	aggggtgctga	gcattgtagg	tcgcgcgaata	tcacggccta	cggacgtaca	960
gccacggagc	gaatcgtatc	ggattggctg	aaaccatccc	cgatttgctt	atcgtcagcg	1020
gactggcgtc	ggcgctcgatg	tcgcagctca	taaggccgct	ttggacaatg	gcttgccctt	1080
gtagctgtat	tggtccatgg	attggacagg	atztatccga	gcgggtcacgt	tccattgcta	1140
tgggaatgct	ccgaaacgga	ggcttgctca	cggattccct	atggggactg	aaccggagcg	1200
attcaatttc	gtcggtcgca	atcgctcgta	gcaggcttgt	cggacgccac	acttgatgatc	1260
gaatcgccg	aaaaggaggc	tcctcatca	ctgcgggact	ggcattcggc	tacaatcgcg	1320
aagactggct	ctaccgggac	gagccacgga	tagccgttcg	gccggctgca	atccttgata	1380
agggatcaaa	aagccgcgct	tgtcagctcg	gctcaagatg	tctgacgctg	ctcgattgga	1440
gttctaccat	agacgccaaa	cctcagacat	gaattttccgt	cccgatagtt	ggccggatac	1500
ccccgtagcc	gaatgtcttt	cagagcaggc	acagcctcgg	tggacgagct	gacacgcgct	1560
accggactcc	tataaacgat	gtttctgctc	agcttttcga	cctcgaattg	gacggacggt	1620
acagtctcag	cccgggtggca	tatactccgt	tatataaatt	gtacgagaag	atgtctccca	1680
ccttgctccat	actcataccc	gtttataaaa	gggatgtcgc	agactgctgg	aggaactgta	1740
taagcaggcc	gaagaactat	ccgtggctac	gaaatcattc	ttggagacga	ctgttccggc	1800
gaaccttaca	ctttcaatat	atcgcttacg	aacaggaggg	actgtgccga	cttgtcagtg	1860
ccaagagaac	atgggagccg	gccgtctcgc	caatcgctta	gcagaagaag	ccaaggcgag	1920
cagctcctta	tcctcgactc	cgataccctg	ccggcatcac	cgacttcac	gaacgctatc	1980
tgcgacatgc	ctccggcaca	acagtcgtag	tggagggttc	gtctacccgc	ccaaatcgac	2040
caatccccctc	cggcaacgta	tggcgccgaa	gtggaaagtc	gatcggcgga	agagcgagca	2100
cgaaaaccca	ctccggattc	atctcaatgg	ctttcatgat	cccaagaaaa	cagatgttgc	2160
caccggcttc	cctcccaata	tgggtatggg	gtatgaagac	atcctttcgg	cgagcgtctg	2220
cgacaagccg	gcatacccat	cctacatatc	gataccctgt	agaacattac	cactgcgata	2280
ctgccgaggg	atttttgccc	actcgcgtag	ctatctggac	aatctctatt	gtcaccgcga	2340
agaattagcc	gattgctaag	cctgctcaga	gcatacaatt	tgctgaaaacg	gctacacctt	2400
agcgaatggt	agctgctttg	tggccactga	tcctgatcctc	attggaaaag	agctcacggg	2460
agctaagccc	tctctcctcc	tcttcagcct	gtataagctc	tatacgtagc	ctccctctct	2520
ttggtgtgtg	ctgaaaaaag	ctgatccctag	aaagatcaga	aaaagcaata	attatatcga	2580
aatgtttgac	ctcctctcga	gtgtcaactt	tttttcagta	cacgtcagtt	cgtaaaaaatg	2640
gcgggttagcg	tttggaaaaa	cgtggctcgg	gaattttttc	gttttggttc	ggaaataaaa	2700
attttacgcg	ccacaacgga	aaaattctcg	ctcgcgaatt	tcagaaacac	gaactgctgt	2760
ccggtaaaat	ttgggcagtc	aggaaaattcg	agaaaaatct	tcctttcttt	gccattactg	2820
ttctataaag	tgtcattacg	aagggaacac	agcctaacca	catataaatg	gcagtaaacg	2880
aaactccatt	atacagtatg	ttttgaagaa	tcttcatttt	tttaccggac	ggcaacaaaa	2940
acacttatct	ttgtaacata	gataatcact	ctctttaaga	gagaaatagt	ccttatggat	3000
aggataggct	taaaaacgaa	ggttcattga	gtcggaggat	gacgggagga	ctgtggaacg	3060
agctttttgt	aagacgatgc	cgaatggttt	tggaaagtga	tttatgttga	actcaaagaa	3120
gttgaagaaa	gatggcaatg	ttaagtattt	actcccatat	atattgaaat	gggaagggtg	3180
ttttgccatg	atcctgccga	tgcaggaggg	gcaacaaaca	aagggtgtaac	aatacgactt	3240
ggaaaagagt	cggctatgac	aaagacggcg	atggagacat	cgagttgagg	atctcaagtt	3300
gctaaccgat	gatgacgtcc	tgaatcgagt	ctgaaaccat	tttattggga	tcgttggaag	3360
gctgacttaa	tcgagtctca	aagggtggta	atatccttgt	cgattgggtt	tggggttcag	3420
gcaagtatgg	attgttattc	ctcaaaggat	actaggtgtg	caggctgatg	gaatagtggc	3480
aataagacct	tacaggctgt	caatagtgca	gatcccgatg	agctgtttag	tccatcttcg	3540
atgcacgtcg	cgagttctta	gaggacatta	cagcaagagc	ataaaaaagt	acgaggatag	3600
catcggacgc	aaggccaccg	aacgcgattg	ctaaggcata	ccaacanacg	tttcttgaga	3660
ggttggttga	accgtttgaa	gatattagga	agctctaaag	ataaaagcct	gcaggttcgt	3720
acccgtcaac	gaatatctcc	atctgtcgat	ctcggttggg	ataaaagcct	tctggaaatc	3780
ctaagccggc	cgaatgggtt	gtgtcataat	tcgatttatg	gctagctcgt	tttcagaagc	3840
cgatatcag	caggccggcg	agaccggcaa	gagtatcgtg	aggatgggat	ggagccactt	3900
cttgacgggtg	acaaggaagg	tagcaggaac	aggaggatgc	tccaaaggtc	ggtgaagttc	3960
tctcgtagcg	tacctgatcg	aggcttgccc	agccggtggc	ga		4002

(2) INFORMATION FOR SEQ ID NO:644

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 601 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:644

```

gtcgtatccg aacaattggt cggagccggt ttcaatgaga tactcaacat tcgcttacgg      60
ccggttctta ttacgaaggt cttgaagagcc atccgagaag atggcagtgg agctgatgaa      120
tccgctgagt caggagctta actgcatagg cagactctgc tattcggagg attggagacg      180
ctcagccaca acctcctcgt aagcatctct ccctctatct ctttgaatgg ggtaaatgct      240
atcgctccat gccgcaaagc gcacggacga gactccctt gcggcctatg cagagacgat      300
cgctcggca tttggatatg cggacaacgg gtgcacaata gctggcacac cccgaagaac      360
cgacttcggt atttgaactg aaagctgtgg taaacaggta ctttgccgcg tagggatcga      420
aaccggagct tatacgtctg aacagctgac aatgatctgt acgcatctgc catggaggtc      480
aagactcgtt gggcaaacctg ttgggtacat tcggaacggg atcaacggaa ctgatcaaag      540
cttcgaaatn gagcaaccgg ttactttgcc gaatgctttg ggatgcccc a tgagcgaatc      600
g                                                                                   601

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(2) INFORMATION FOR SEQ ID NO:645

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 303 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...303

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:645

```

aaaagaaaca aaaagatatg tcccatttgc caatccatag aagttcgcac tcaccgattt      60
tggagtctat ctgaagacaa ttgtatctaa aacatctgat cttcagacag atatgccttt      120
tctcataccg acgactatta tttcttcgct tcatagaggg ggggcaatgt cgtctgaata      180
ttgatttcaa ggaatgactt ttcgaaaagg atagtctggt tatcattcgt ccgggacagg      240
tacatgcac attgatgctt acaatcttcc ggcaaacttc cttattattg actctattgg      300
taa                                                                                   303

```

(2) INFORMATION FOR SEQ ID NO:646

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 507 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:646

gcaatttggga	caaatacacgc	atgaaaaacc	gttaacagcc	attatttcat	cagttacgag	60
tgcaagagca	aaaattgaca	attttcacct	gaaaatgttg	tctgaagagt	gtttcaaaaa	120
attacaaaaa	tgtttttcag	acgagaccga	acagccgaat	acgtgaagca	ggggattatt	180
tgattacctt	tgaacacaga	aacttagctt	tgacaatata	tgattacagc	cgaacgttat	240
cacgaattag	catgggacac	cgcgtagtgg	ggcacgatca	caagtgcaga	catcgcatgg	300
acacaactat	cgtatccact	ttatttgcag	tgcaccggct	cttattcgat	cgggcgtgta	360
gtcgatttcg	gtgttatcaa	agagttgcta	tgacgtggct	tgaagatcat	tgggatcaca	420
agatgatgct	atgggagcag	gtccgttgct	tctgtcttgg	cgtgcgactg	tgccggacga	480
tctggttgca	taccgttcaa	tcccacc				507

(2) INFORMATION FOR SEQ ID NO:647

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9159 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...9159

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:647

ctgatttatg	tattcgctca	tctatctgtc	aaaggctcgaa	aagctcctgg	ccaactcctc	60
cctatcgatg	gatacagcat	cgaaggcttc	ctgtgcatca	gtcgcaccag	atcgggatcg	120
ttcacacgct	cgcggttcac	cacggcgagg	aaccgtagt	cggcagtggt	tgatccgcca	180
catgaggcga	tcggaggcga	tcgtcagagc	gatggctgct	gctacggagg	ctcctcctac	240
actcccagga	tacgtcttga	gagcaagttg	cgggtagcaa	gtttccgagt	gtagaaaagga	300
aacgcccata	cacggcacgc	ctgcaactga	cataaccgaa	gaggggcgca	agtgtctcca	360
ctgctcgggc	agcttggccg	tagcaaaata	gcacgcaggc	gatcctcttc	tgctccggag	420
gtaagcccg	cgaagtactt	actaacaatt	ggccgatttc	cgcttcggtc	ggaacagctt	480
ttttgttgaa	cctattcggt	tcatcatcgt	ttgagttgga	gagccagtgc	tgtacgcagg	540
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ggcagtgcct	cgatagcagc	ttccacagac	gcattggtct	ggattgctcc	agtacacctt	720
gggggtgtagg	ggcatatcgg	agaaaggcag	atcgctccgt	agcggttcca	tccgtccttc	780
tttgggagca	tatccaaggc	tattcgccga	gcagtgggtca	cagccactgc	ttcatgctgt	840
cgatatccgcc	cagccgctct	cggttgatcc	acagacgcac	caagcctctt	gcgacacgtc	900
ggccgcagct	tctcgtcgt	cgaggatgct	aatgccactc	gtttgagtcg	aggggcaaaa	960
ggggctacgc	tatgggagaa	gcttctactt	ccatgcttaa	gtaatcgga	caggacctcc	1020
gttgcaaagt	ctttatttac	gagacgcaga	acaaaccgga	atctgtcatc	cgatagagaa	1080
tttttttgcc	cttccccgaa	tctcatcctt	tcagcacccc	atcgacgtcc	gaagcgttac	1140
ctcatccgat	actactatta	ctctcttcgg	ataccgactc	aaaccaaaaa	gcattgacac	1200

atcggccttat	acaggggatcg	gttaccgcgcg	gaatttttgg	gttcgctcgtt	cctcaaaacg	1260
tggcgcgtaa	tttttgcttc	tggtcgggaa	aatgaaaaat	tctcacgcca	caacgaaaca	1320
attctcgcgc	cattttttca	gaaaacacgc	gcgcgaatcg	gcgcattttt	ggtcgtgttt	1380
ccatgacagc	aggctataga	cattggcgcg	atcggatcga	ttcggggcgt	tatggctgca	1440
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tcttccaata	ccttcatttt	tttcagtaaa	atgaatcgag	cacgaatcat	cgtagccggc	1560
atcggtcggg	aggagcatcg	gatattactc	ctgcagtgtc	atcggctatc	ggccggctga	1620
cgtagtcgtc	ggctataaat	actatttccg	ttttatcgaa	ccttattccg	tccggatacc	1680
cactgcgtgg	ataccggcat	gaagaaggag	cggcacgtgc	cgaggaagca	ttcgggtatg	1740
ccctcagcgg	caagacggtc	tgcggatcag	ctccggcgat	gccggcatct	acggtatggc	1800
tcctcttata	tataaatgaa	acgagccaaa	ggcgtggaga	tggacatcga	agtgtctgcc	1860
ggatcagtg	ttttcagaaa	gcggcttcgc	tgtctgggtg	tcccatcggt	ccgacctctg	1920
cctgatctcg	ctgagcgatc	tgatgacccc	ttggccgatc	tcgaaaagcg	catagtggca	1980
gcagcctncc	cggacttcgt	cacagctatt	acaatcctaa	gagcgaggcc	gatactggca	2040
gctctatcgt	ttcgtagaat	cttcagtgcg	tctcgttcgg	ccgataccgc	gtcggacttg	2100
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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 928 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...928
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:648

```

aggaaaccgg cgaccgcaag cctgtgaact atgtgcttcc tccgggcggt tgcgttcact      60
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acactggcac cgggcgatgc acgggcttat ataagaacac gggctacgac ctgagacggt      180
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aatactccat accgttgccg ctgactcctt tcggtactta ttcaccaata gcgaaagcga      360
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ctgagtgaag tcaagactat catgatcggg attcgtaata atagtactac atcaaaagcg      600
ccgagatatg ggtcaatgag ctacagactca cggactagat gagaaaggcg gatgggctgc      660
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ataaccgcag gattcgtgct ttggacgagt ctctcacaca gcgagccata gaagatacgc      780
gtacctcaac ttctccacca atttgagct tggcaagttc ttccccgaaa aagtcagatc      840
agcatacctt tctattactc ggtatcggat gagaaagtat ctcccaatac aatccctttg      900
atcaggacat tctcctgaaa gatgctct

```

(2) INFORMATION FOR SEQ ID NO:649

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 392 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...392
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:649

```

tctgcgtgcc ctgacgggat tggagcgcca caagctgcgt gcagagttca agagatcatg      60
gcctccatca atcattttgga agctcttttg gctgataggc attactgatg gagctgggtca      120
aaagcgaact gctggagata aaagagaata tggcgatact cgcaaaagcg agatcatata      180
tgcttcggaa gaattcacc cgaagacttc tatgccgacg atgatatgat catcaccctt      240
tcgcaatggg ctacatcaag cgtacccttc tgagcgaatt cagaacgcag gctctggcgg      300

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agtaagagcc aagggatcgg atactcgcga aagaagattt cggggannta tatctactcg 360
gcctccatgc acgccacat tatgctgttc ca 392

```

(2) INFORMATION FOR SEQ ID NO:650

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 778 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:650

```

tcttttcttc ctctgtataa gaagatcttt cactatcaat cacatccata acccacatga 60
agtactgtgt gcactacat ggtgagaaac tttaattaat caaagatgac tggttttgtt 120
tcacttttat atactttttc tatcgcctgc tcacctgctc cgggatctgc atctcccata 180
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ccaagccctc ctccattctt cttttctcaa tatacattct gccagggtag cgccttttct 600
tcattgacat tttagcttag catatcaatc acaatggcaa ctgatcatat aagcctatcc 660
acattcgctt tcatctgctc ccgtcctggc tgctcattgg taataaccct ttggtagcag 720
ttatatatga atatgttcga ttataanggc tggattttga gttaagcatt ttttatca 778

```

(2) INFORMATION FOR SEQ ID NO:651

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:651

```

gatcgtgtac acagtctcgc tatgttggtg ttcatgagc aatacaggaa aaaagtngcc 60
gaacatTTTT ctctctcnt anggagcggg acttctacta tgtctttact gtgaaattaa 120
aaccgggaca gcgcgatttc tttttcgggc aaattttcct ggtatgcaga ctgccatggc 180

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ttcgatcgtg	aacaaaccga	tatgaatcac	tttatgcagg	tcctcagata	tttggaccct	240
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gacgggttacg	atcgggggaa	ccatcactca	gcctttacca	ttcagccgga	cggagaaaac	360
aatgtgaagt	tgcagcgtgt	ggttgcaaag	ttgatgtgaa	tatcgtggaa	ggagtggaaa	420
atctgcagaa	gattgaactt	ttaatgctaa	tgtccactat	agattggtgc	ccaaatcagt	480
cagagcctat	caagttttac	ggncccggta	gaactaaggc	gagtaggtac	cacgaaccat	540
ggctttggct	attatgccg					559

(2) INFORMATION FOR SEQ ID NO:652

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:652

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acgctccttg	gcctcttcaa	gtgtcagtga	ccttcgcgat	gagcctctt	gatgtcgagc	180
atacgtccca	acttactttg	tcgaggctgt	caaaaagttt	atattgtttt	atgacctgca	240
tgtttttgag	caattagtga	tgaataacaa	cctcctcgca	gcttatcaaa	agctattgtg	300
gaggtatatc	cactttcgta	aatataacaa	tctcagaata	tattttgttc	tggtttttca	360
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gattgtggtc	tgtgttttgt	gaaagcaggc	gcgagatttt	tttcgttttg	gtttcacttt	480
ttttcttttc	cacgccaata	gcaaaaagtt	cacgtgccac	acttttgggt	gtcataaacc	540
gaaaatttag	gcgtgtgaac	ccaatcggt	agggatgata	catcctatgc	tgaatcgga	600
gtgaatatgg	tgcaaaaaaa	gagggacagt	gc			632

(2) INFORMATION FOR SEQ ID NO:653

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:653

tcacgaccga	agaatgccaa	aaccaaatta	aaaaccagaa	gaagattata	tcgtagttcc	60
agttaaagaa	ggcgagaaca	tcgaaagagc	actgaaaccc	tcaaaagaaa	gtttgaaaaa	120
accggagcag	tacgcgaatt	gcgtgctgtc	aggcttttga	aaagccctcg	gtggccaagc	180
gcaagaagat	gcaaaagcca	tctacgtgaa	gcagcttcag	gttgccgaag	aataaagaag	240
aataaatattg	ccgcagtctc	tttgcggtctc	aagaggggtg	caatgatcga	gaccatctca	300
ttcacgacaa	tgaatgaaac	acccgacacc	atcgaaagat	tccctattat	ctacgctacg	360
aagttcacgc	gtcagaacga	accgtttgtg	acatgcacaa	gatttgaatc	gctatgccgc	420
tttcttcagt	gaacacacgg	ggaagtattc	gagccaagcg	aacgcgacaa	ggatgtcgcg	480
cgcgcttggc	cttctcttta	atggaagccg	gacaaaaaag	ctcttccgtt	cagcgagat	540
gagcgcgttg	aaaagctttt	acaaatacat	ggtcaaaatc	gggcttatgg	gcaaagtcct	600
gtccgaatgc	tgaggggacc	gaagaaagag	aggccgcacc	tgttttcgtc	ccgaacaatg	660
aaatggaaaa	agtgcgtgaat	aagccctccg	tgaagatgat	ttcgaggccg	tacgggacag	720
actgattctg	gagacctgta	tgaagtgggt	ttgcggcggt	ccgaaatagc	cactctcaaa	780
gacacgcggt	agaagacaag	gccggctgca	tacgtatcat	cggcaaaagg	aataagagcg	840
aatagtacct	ttcggaaaaa	gtctgcaaga	tatgatagac	aatatcgga	tattcgtgaa	900
gaaaaaagtag	ggaaatctga	tttttttttc	gttcttttga	tggcagacca	ctgacaggtg	960
aagtgggtcta	caagatagtt	gtacggcatt	ggcaaacgta	ccgcacctga	ccaagaggag	1020
tccgcatgtc	tgagacacag	cttcgccacc	gaaatgctca	accacggagc	agatctgaat	1080
cggtcaaaaga	acttttaggg	cacgacagcc	tttctacgac	ggtgcaaaac	cgcatatttc	1140
gttcgaacaa	cttagacaga	tgtataacgc	tcattccagg	caaaaaaaga	aacgaccatg	1200
acagatgtaa	gaattccaagc	tctgctttcg	atgctaccga	ccaactgaaa	gattttgtac	1260
agaagaaaaat	atccagctga	atcgcttgtc	cgatggaata	acgggagccg	aagtcgtcct	1320
caactcgta	agcctgagac	cgtacaaaac	aaagaagcat	ctatcaggct	cttatccccg	1380
gcgacgactt	gttcgcggaa	aagatagcag	acacctttga	gaagctattg	atctgacagt	1440
cgatgcactg	aaaagacaga	tcgaaaaaag	aaagaacaga	gaaaatagga	caaagaccaa	1500
aaagattcgt	cgaatgtttg	cgaattagaa	aatgtcacta	aatttgcagc	cgattcgcct	1560
ccccttaacc	gcatgaggct	aaggctgtga	ttttagcggg	aataagtcag	gcaccgggcg	1620
cgaggggagc	ttaccagagt	ggccaaatgg	ggctgactgt	aactcactgg	cttacgcctt	1680
cgggtggttcg	aatccatcac	tgcccaccct	ctctgcaaaa	cgagggaata	tcggattgcc	1740
aatgtagctc	agcggtagag	cactccttgg	taaggaagag	gtcccgggtt	caagtcccgg	1800
catcggtctc	gatgtggtta	gcgttttgta	taagcacaaa	caaacaactt	aaataaaaaca	1860
aaaacttaag	gttatggcaa	aagagcattt	taacagatcg	aaacccacg	taacgttggg	1920
acgatcggac	acgtggacca	cggtaagact	accttgacgg	tgcaatcaca	actgtgttgg	1980
caaagagggg	tctttcagaa	ctccgttcat	tgattcaatt	gataacgctc	ccgaagaaaa	2040
ggaacgtggg	atcacgataa	tacttcacac	gttgaatacc	aaacagctaa	tcgtcactac	2100
gctcacgaga	ctgtccgggt	cacgccgact	atgtgaagaa	catggttacc	ggtgctctca	2160
gatggacggt	gctataatcg	ttgtagcagc	tacagacggc	cctatcctca	gactcgcgag	2220
cacatccttt	tggctcgtca	ggtaaacggt	cctctctggt	tgttttcatg	aacaaatgtg	2280
acatggtaga	cgatgaagag	atgtcgagct	tggtgaaatg	gacatgcgcg	aactcctttc	2340
tttctacgat	ttgatgggtga	caataccctt	atcatccgtg	gttctgctct	gggcgctttg	2400
atggagagcc	tcagtgggaa	gacaaggtga	tggagcttat	ggaagctgtt	acaactgggt	2460
tcccctgcc	gagcgcgata	tcgacaaacc	gttcttgatc	cggttgaaga	cgtgttctct	2520
atcacgggtc	gtggtacggt					2540

(2) INFORMATION FOR SEQ ID NO:654

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1206 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1206

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:654

agaagtcggt	tggttttgcg	atacccttta	aagaangcgt	ctgcaatgtc	agccatcggt	60
attctggatt	ggtatgccat	ggaggatatt	atgctgttta	atactcaa	atncaaaata	120
cctccctata	tccaatgaat	taccaaacia	aatatacgcc	aatcgccgtg	caaaggtctc	180
aatggcggt	ttagcggttg	aaaaacgtgg	ctcggaatt	ttttcgtttt	ggcgcgggaa	240
gtaaaatttt	acgcgccaca	acggaaaaat	tctcgctcgt	gaatctcaga	aaaccgaacc	300
gcattccggc	caattccgga	accaaattcg	tgaggaaatc	gctacaacgt	ctgttcgacg	360
tatgtcttaag	gcccatacgag	gtcaagccct	catgaaagtc	agaaacaact	caatcggtatg	420
atcagtaaga	cgcgctgctt	gtagaacgta	ccttcggtag	tattcgacga	tggttctgtg	480
gcggacgatg	cgctaccgag	ggtagccaa	gacacatacc	cggaatatcc	ttgaagctag	540
gcctacaatc	tcaagcgat	gccggggcct	cttgtgcttc	aaggcgcaaa	taggcgtaaa	600
acgccggcac	ctcgagggca	attgccctcg	aggtgcggaa	aggggactaa	tccccaagct	660
gcaaaacaga	cgagaatggt	caaaaaaac	cggaacaag	cgagcagaaa	gaacagcctc	720
tttgtgcaat	gggtctatct	gggattgata	gatgaggata	ttccccttat	cgctccttgtg	780
ctcctattat	ttttagttac	aggacaaatg	tagtgctttg	tgcgggcttt	ggtggtctca	840
gaatttgaga	aattcaagag	cagattccaa	tctcaaagtc	aacttttatg	aataaccgga	900
aataatacag	ctcaatccag	atcggccata	ttatcttcca	ggtagaatcg	ggaaaaatca	960
gataggattc	tgctcctgac	ttcggaagtc	ttcccgggcc	tttttcattt	cctcgcggtg	1020
ttgtttgagg	ctttttccat	ctctcggcgg	agcttttccc	gctccttgcg	ccattcttat	1080
tttgcttttt	ctgagccttc	atatactctt	ggtagtattt	ctcctttgct	tgcgatattt	1140
tcgcatagcc	tccgagttgt	caggcttcaa	aacattcact	ccttgcgga	ataacgcgaa	1200
cggccg						1206

(2) INFORMATION FOR SEQ ID NO:655

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2732 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2732

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:655

ttccaatggt	cttcgtcccg	catcatcatt	gtcgagatag	cattctatct	gcgataaacg	60
cccaacacta	tcttgcggtg	tgggtcggga	ctatgaagga	ctttccgata	gagactgaat	120
acatgactaa	cggttcatac	aacgacttaa	aatatattga	acgctgtttt	gaatgtgtaa	180
atgcctcaaa	cctgattcgac	agaaatgtcg	ttcgacaaat	gaattacctt	tgttgggtag	240
ttatagagaa	aaaggcaatg	aatccgccca	aaagactgct	tgtcattcac	cgcgccttgc	300
tccttaccgt	atcgaactgc	tcaatactct	gtcggcagct	ttcatacaca	tatctacttc	360
gaatttgcat	cacctataga	acagcgattc	gagcaggcga	actagccaag	cgtgttcact	420
ttcaaagcag	tgtacttcct	ccgccccaaa	aatcccgggg	ttgaaaaact	ttcgtcccta	480
tgcgcctca	tggttcgag	tcttcgtccc	gatgtcgctc	tctgtagcga	attcaatctc	540
tgacactgac	ctcactgct	gcctctcgcc	tgttcagtc	gaaaaccagc	tgtatgtctt	600
atgcgatgac	aatgaacaaa	tggcagaagc	agagctgact	acggtcgtgg	cctcaaacat	660
cggatgctct	cctatgtgga	aggcgtattc	tatgtgatag	ccgtgcctgt	gatctctatg	720
cctctcgctt	cgctagctgg	atagggagcg	attcggtttac	ctccccatcg	tacaggacga	780
aaagtgtctg	gccccctcta	tgaacaggtc	ttcggtatag	gccggggacct	gcgcatgctc	840
tcattcctgc	tgggtgctcg	atgatactgt	atgtaggacg	ctgtcagagg	aaaaaaacct	900
gccggcactg	atcgataacc	tttcactct	accgatgatg	ttcatctcgt	tattgtcggc	960
gacggccccg	tgcagtcagc	ctaataatc	aagtgcgaagc	tacaggccat	ccggaacgaa	1020
tcataattga	gggaaaaaag	aaggagcaga	gctttatgcc	tactatacgc	aggccgatgc	1080
ctcgtattac	cgagcatgcg	cgaatgtttc	ggttcggtcg	taaacgagct	ctcatagcag	1140
gcgttcctgt	ggtttgacgc	gatattgccc	gggcattttg	ctgggttacag	aaagcaacgg	1200
acgtactttc	tcccccatgc	tgcgcatgct	ctctctcaag	cgtgtaatga	tctgcttgga	1260
agcatgcgac	cttttgcggc	gacagccttc	gaccttctct	catgccattt	actttcgaac	1320

gagcatancc	cctgtgctat	ccctgcttag	ccgatgaaaa	ttctcctgct	gatacatncc	1380
atgcaagagg	cggagcagct	gtagctgcta	tgcgcttgat	gaaaccttac	aagaggccgg	1440
agccgaagtc	aggatgttgg	tattgaaccg	aatacgacaa	accccgacat	aatggcttta	1500
catagcggac	gatgcggcaa	cagccgataa	ataccgtttt	ttagctgaac	ggcttcatat	1560
ttacatgtca	atggtcggga	tagaagccgg	ctctttcatg	tcagtacggc	tcttatcgct	1620
atgatgtcag	ctgtcaccgc	tgggtacgct	gggcagatgt	catccactgc	actggatcaa	1680
tcagggattc	ctttcactga	gagggctgga	gcgtcgaccc	gatgcggtaa	atccgtagta	1740
tggacgatgc	acgatatgtg	gccttaacag	cgatttgcca	ccatgcccga	gagtgcctgc	1800
gataccgaac	cgatgcggtg	cttgtccgca	aatttcctcc	caaaaggaga	aggatttggc	1860
tctcttgat	ggaatagaaa	atcccagta	atatccctac	tccggcctac	gttatcggtt	1920
gtagccattg	gttggccgat	ttggcacggc	aaagcgcact	acggatggac	tgcgaatcga	1980
atcgataccg	aatcccatcg	acacgaatcc	tttgcctcgg	gttcacgttc	ggacgctcgc	2040
cgaataatgg	atttgccgca	gacagaatat	tgcttctctt	cggagctgta	caggcggatg	2100
atcctcgaag	ggcatatacg	aactgtcgca	agcaatgaaa	agacttcgag	agagacgccg	2160
gatttaagca	aacgaatcgc	tcttgtcgta	ttcggctctc	tccgcatgag	gtgagaagtc	2220
tttttcccaa	ttataagctt	atttcgatcg	gttaatccgt	gaaccaagcc	gaatggccga	2280
actgtaccgt	gctgccgatac	tcttgtaatt	ccctctttag	aggagaacct	ccctaatact	2340
attatggagg	cttctctgtc	ggtacgccct	gtgtggcttt	ccgtgtcggg	ggtataccgg	2400
aatgatcgta	tcgggtagta	ccgatatttt	agccgctttt	cgtgatccgt	cgatttggca	2460
gaagggataa	ccaagaccat	tgctctacaa	gaaacctccc	cgaagctgtt	gcttcagctt	2520
gtcgtccctt	tgttctcagg	cactactccg	tgaagtagta	tctctctgta	tgctgcagct	2580
ctaccgcgaa	ctgctctact	tgtacgaaga	aggaatagga	aaacatccaa	aacgcaagag	2640
tcttttggca	acttttcagc	agataaatat	gcagccatct	ttttggcacc	aaaacatacc	2700
tttgtatcat	aatcattatt	aagaacgagc	tc			2732

(2) INFORMATION FOR SEQ ID NO:656

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:656

gcgcgatgct	atthttcagtc	gtcagcgcta	ttggggggaa	cctttccctt	ctactacaag	60
gaggggatgc	ctcacgcgct	ggatgaagat	cgactgccct	ccgattgccg	gaggtagata	120
aattcctccc	cacagaaaagc	ggtgaacgcc	ccttgaaga	gctaccggct	ggcatacagc	180
cgaagggtat	ccatacaatt	gagcacaatg	cccggatttg	ccggtagcag	tgcttactat	240
ctgcgtatat	ggatccacaa	aacgatactg	cactcgtcag	ctcgatcggc	gaataatatt	300
ggcgtcacgt	cgatctatac	atcggttgta	cggagcacgc	cacggacacc	tgatttatag	360
ccgcttttgg	aacaaatttc	tcttcgacct	tgtatcgat	gcgaagccga	acctttccgc	420
aagctgggtga	atcaggggaat	gtccaaggac	gcttcaactt	cgtctatcga	atcaagaatn	480
ccaatacat	gtcagctatg	gactgctcga	gcaatatgag	gtgactccac	ttcatgtagt	540
gtcaatatc						549

(2) INFORMATION FOR SEQ ID NO:657

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...643
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:657

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aggtttcctt gtaattggct tgccacatca agagcagaag acatcttggt ccggaagcat      60
tctccttggg tgtacgcatg aagcgttcgg tgtaaaccac tcgtagaaac gccagtctgc      120
cacaggagca acggctatcc ccgctttaat gtaccatttc cccgacacaa actcattagt      180
gtggtatagc cgccatgctc ccccccata tgccgatacg agctgcatcc acatagggca      240
gctgtctata gcagtggcgg ctgctatctg atcatcgctt tcgaatacac cgagtgcgatg      300
taggtacact tgcgccattc ttgcgcgcga gcaccggtgc caccatcc acacatgcca      360
cgacgtaacc tttcgatgca aggtagtgtt ccaatcgaat gaatagcgat ccaatacctg      420
ctgggagttg ggaccgctat atgtaccatc aggacaggat agtggcgaga gggatcgaaa      480
tcaataggct cagatccag gcattcagtt caagaccgga ttgagttttg atagtggtaa      540
ctccttcggg ttgtaacgat aggttttcag ccgttcacgg agagcaactt atcctccagt      600
gtacgcagct ctttggcacc tttgcttctg aataccgaac cac                                643

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(2) INFORMATION FOR SEQ ID NO:658

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 637 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...637
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:658

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ggttgccgag cagaatttgg gacagtttgc actctatctg cgaggcgaat tcccggattc      60
caccgcgtgc agttcaaccg tgtgaccggc cagccgctgt tatgagttag atggtagaag      120
tattcacgca aatgatggag gagaaatatt atgtcagaaa cgactaagtg ccccatgtac      180
gaggcaaaag actatagagc gatcagatag tgcgttggtg tccgggttgc ggcgaccacg      240
ctgtgtagta accctccaga aggcaatggc cgaaataggg atccctcccc atcaacggcg      300
gtaatgtccg gtatcggatg ttcttcccggt ttgccatact atagaacacc tatggcttcc      360
acaccattca cggtcgtggt gcagccatcg cgccggcgtg aagacagcca atccggagct      420
ttccgtatgg ctgcgatccg ggatggtgac agcttggtta tcggcgggcaa ccacttcatt      480
catgccgtgc caggaatatc gatatcaatg cagttctctt caataaccgt atctatgggt      540
gaccaaaggc caatactctc ctacctcagc tcgcggattc gtatccaaag ttctccctac      600
ggtacggtag aagatccggt tatccccgca gaactgg                                637

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(2) INFORMATION FOR SEQ ID NO:659

- (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 304 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...304

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:659

tcgttcgttc	aagggtcttc	ccaaaaataa	acagttgatc	aagtatctgg	cgaaccgccc	60
atcaagagct	ccatgctgaa	gaccgaagaa	gcatacatgc	tgaaaacatg	aggaatatgc	120
atttggtcac	agacgaattg	tatttcacat	agatgaaaag	cgtaatagcg	tanagcttac	180
cgagaaaggt	atcgacttct	gacgtcccg	acagatgacc	cgaaattctt	cgtcttgcc	240
gatatgcagc	tgagttatcc	gctttggaca	atatggaatc	cgatgcataa	aaacttgcca	300
agcc						304

(2) INFORMATION FOR SEQ ID NO:660

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1024 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:660

gacaaggaca	cgaagcgctt	ctggttggtg	ccaagagggc	cgaagccaat	cgggacttgt	60
gcaagcaatt	ctattataag	acgacggcat	cgttcctacg	tgacttggtg	tggggacgtt	120
tcgactaccc	gatcggaac	cattaccgca	atataggacg	cgacctgaaa	gaccgcctgc	180
aaatggcggt	attccccccg	atggagatat	tggcaaaccg	gccgtaacgc	attatcaggt	240
cttgagagac	tggcatagct	cagctggata	gaatgccgtc	tggagacagg	gcgtcccatc	300
agatcagggc	acacatgaag	cacataggcc	atacgttggt	tgcgacgagc	gttatggcgg	360
cgatcaaatc	ctgagaggaa	acaatacggc	cattaccgcc	gattcgtgca	gaactgtttg	420
gctatctgtc	cacgacaggc	ttgcatgcca	agacattagg	ctttcgccat	cctgtcacgg	480
gagtggagat	cagttcgact	ccgatatacc	tgccgatctt	accactttgc	ttgagcgttg	540
cgtacgttta	tcgcctgcat	atctgcagga	caggactata	tctgaaccat	tcggctgac	600
ctcatacaaa	tagtacaata	ctttccccta	catattaata	aacagaacga	tgaaaaaacc	660
aattgtggct	gtcattgcag	gcggttttcg	ggcgaacatt	cggtttcgct	caaaagtgt	720
gccggcattc	tgtccggctg	ggaagcgagc	ctttctccac	ctttcttggt	ctgatcgaa	780
gtgacgctgg	tcggtaagag	tatcggagca	gagagaggtt	ccactggata	agacgatttc	840
agctttgatc	tcgatggcga	acgaatacgg	tttgactatg	ctatatcacc	atacatggaa	900
ctccgggaga	gaacgggtctg	cttcagggtt	actcgacatg	atcggcatcc	catacaatac	960
gggtgacncg	ctcgtcgaat	cctgactttc	aacaaatatg	tgtgcaatcg	ttttctctcc	1020

ggct

1024

(2) INFORMATION FOR SEQ ID NO:661

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:661

ccgacaccca	gtagtaagaa	ttgacgttgg	tcatgtcgaa	cagattgaag	aggtcagccc	60
ctatgtaggc	cccttttact	cccattagcc	atttgcttgg	ccggcaaagg	agtcacccgg	120
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gccttcaaac	tacgtagccg	gcaggagtct	cttccgatga	ccgcgccgtg	ggatcgcaac	5400
cccttcatgc	cggaggacaa	ggatcgtaag	gagcgttcgg	cgagatgatc	aatatccaag	5460
tgtcgggctc	atgcaacgcc	tgc				5483

(2) INFORMATION FOR SEQ ID NO:662

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1186 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...1186

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:662

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ggctcagacg aggcatagat cccatgcaca gctctttgcc ggagaagagg gggaggggct      60
ttcccttttg ctttggccta cgcacgctat ctcaactgca gatgccgacc gatacggatg      120
cttgtgggtca ttgtccgtcg tgtgtgaata cgatgcgctg gcacaccccc atctgttttt      180
cgtctatcct gtcgtaacgc gtctctttcg cctgcaccga gcgatgacta catccgtcag      240
tggcggagat gctcgggtcg gaatcctact ttaccctcgc cgactggctc gaatcatcaa      300
agccggcaac agccaacca tcatttacag caaggaagcc gaaccgtgga gcagaaactc      360
agcttcgcga tctatgaagc ctctgtatcgt gtgtgatgat ttggcaaccg gagcggatga      420
atgaagccat ggcaaacaaa cgctgaagct gataaggag ccgcccgagc atacgctctt      480
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tcaacgtgcg cttgctgcac gagatcgaat tagtggaagc cttgtctcta acaatcaggg      600
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gatctctatc ggggcgaatg ggctgacgcg acaactttgt gcttatggga cgaatgatgg      720
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cggagcgtca gccagatcgg gttccttact tattgtttcg ggctctttcg cgattgtata      840
taagtagagt aggggttgca aaactgaact acctctctcc cgggaagaat ccttcgtcga      900
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gctatccgtc atattcgtca aatggaaacg gtcggatgat ttttttcgat ctctctctcc     1020
gccttacggc gctcttgccc ctgctcttcg tgccaaaggc cttaaataag caaccctgct     1080
ttcccccttt atacggcttg tacatagagg gagcgcgccc tgattgctca ccatttcact     1140
ggatttttgt cgctttttca catccgttca aggcgttatt gctttt                       1186

```

(2) INFORMATION FOR SEQ ID NO:663

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 469 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:663

```

gtttgcagtg ttaaagtaga acctacagat aggttttctg ttgttgtcac taaaaggacg      60
ctaaagtaag actgagtgtc tcttgaggca atacggatcat attgatatat ttccggagaa      120
ttccttttac aatcatatat gcttccactc tgcttcggtc gttacaacaa gaggttcatt      180
agaatcatct tgctctgtga ttgctcctca ctgcgacgca cttctttact tttatccatt      240
accgnttaaa tcgagcagta atcaaatcat taataacaga tttgaaagac ttcttgtaag      300
atccttgaat tgttcaaaaa tctttgctgt aataattccg tcaaaacttg gtttgcgagc      360
attcttacca actgntcaga gggctcattc atttctgcaa gtatcaaaat ctttcaactc      420
tttcatatac cttaaggtca cagccagtac cttagaatct tatcaacca                       469

```

(2) INFORMATION FOR SEQ ID NO:664

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2539 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:664

actggcgacg	cagaaattcc	acggagtcgt	ccgtgnagcc	attatcgggt	acgataagac	60
gagccgattg	tcgcggtgta	tgtgctataa	gagagggaga	actcntccag	catcttacgt	120
ccgttccagt	tgagaatgat	gactgcattg	tcatagttgt	cgggtattat	gcaatcgggg	180
acgtttccag	cggcggggct	ccaaagccat	tgcgacggat	cgcgacggat	ggtggtctcc	240
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ggcagagaga	acttacggcc	gagcttctcc	gtccattgaa	gaaagccggt	tctctgccga	420
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tggctatacc	acgcgaaccg	aatcgctccc	gtatgcgatg	catgagccgt	cggagaaggt	600
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ctgccgga	agtactccca	gttgccaaat	gccccatcat	caggagaatg	gcagggtgcc	720
cttcggctcg	taagcgatca	ggacatcgag	attttcgaat	gagatgtggc	ggcggagttg	780
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ctctgcaacc	gcaccatcca	agcggtagca	ctgcctgcac	atacgtcagg	cctaacagca	1020
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gaaagcatct	gtatacccg	caaatttact	gctttttgag	actgtgggac	agatatttca	2400
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gctacactcg	gttatcaaac	aagtacgaat	taatgggact	ttgcacaaca	agcaggcncc	2520
ttttggttat	tcttcttat					2539

(2) INFORMATION FOR SEQ ID NO:665

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 619 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:665

cttgtaatgt	tactgttgcc	ataactgata	atgctgttag	aaatatttta	gactcattgt	60
aataatatct	ttattcctaa	aacaaggagt	tcgtcttatg	ttcatcgtac	acgaatcatg	120
ctcaacccgt	cgcgcacg	aactatcagt	tctccacacg	ttcatccagc	aagaccattt	180
cgttgaagcg	aaggatccct	gtgtctggct	atcggctcga	agaggctcgg	ccaccacttt	240
accgtccaaa	gcgtattatc	ggccaggatg	agtgtctcgg	gaggcaggtg	gtcttgatca	300
tttcatagta	aaggggtgat	tgtctcttgt	ctgcatccat	ataatcagat	cgaagcgttc	360
gttcttgacc	aagtccggta	gtagatccaa	ggctcccaat	atgtaatctg	atcttaccct	420
caaaatccga	tgcctccaga	tgcggcggat	gaagtcctcc	atctcgtcgt	cgcgctccag	480
tgtgtggagc	gtccgtccgg	agtcaatccc	ctctgccaa	gagagagagg	catanccgga	540
taggtgccga	tctccaagat	ccggcgtggc	ctcatcagat	gagagatctc	gacaaaaaac	600
gtccctgcag	gtgtcccg					619

(2) INFORMATION FOR SEQ ID NO:666

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 642 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:666

gagctcgcca	aaaatttgta	gaacctat	cttcatcaag	gtactctatg	gatttatcaa	60
ccaattcgct	ttgaacatct	ctctcaagcg	atccgcatac	ggctcgcttc	tgtggagaat	120
actgtctgat	tagcatatac	tttgtttgca	attgaactaa	attagctgca	gaatacatcc	180
ctttttccaa	tagttctctg	tttggattaa	tgcatacttt	ggctctaatt	tttgtgatgg	240
gccgaatttt	gataataagg	ggctggaaat	aaatttcctt	cgcgcatagg	cctgttatat	300
ataagtctcc	aatctttctc	gaaaaccgac	acaaacgacc	gcactttggg	tcaatcgatc	360
aataggacaa	agatcagaaa	tcattatatc	tgactgatat	tcacactcat	ttctccaatc	420
tgtgtcaata	tggcaacccc	attgctcgat	cattatccca	agcgcttctc	cctaatactaa	480
gaagcaattg	gcttcctttt	caattttatc	tgttcagtat	acctactatg	ataaagtata	540
cttcttcttc	atgaccgttc	tccaaaaacc	attgatagta	tgcttggtgc	tatcgacagt	600
atttgcgaaa	ataatcgcac	tacctctatc	aaggcatatg	gt		642

(2) INFORMATION FOR SEQ ID NO:667

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 789 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...789
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:667

```

acatgacgta gtcaatatcc tccggcttica atccagcadc ttcgatagct ttgtcataac      60
cagcttggct cccaaccggt caggatgact tgccgtcagt gatatgcadc ggctgaaaga      120
cctgttccca ccaattcggc atagatggag caccgcgttt aagagcatgt tccagttcct      180
cgagaactat acatgcgctc cttcacccat taaaaccggt tcacgactgg cactgaaggg      240
gcggcggcct cttgtggagc atcgttgcca gtggagagag cattcattgc attgaacctc      300
ccactccggc agcgcaaadc gacgcctcag agcctcctgc aatattacat tggctttgcc      360
taagcggatc agatggcaag catcgatcag agattggtag aggaagcgca tgcggatgcg      420
atggaatagt taggaccatg gagccgtatt tgatcgagat ctggccgggt gcaatatcgg      480
agatcatctt gggatgaaaa acggattgaa acgaggcccg ttctccggat tgtagtgcgc      540
acttcacttt cgaaagtcgt cagaccaccg attccggcag aaacgatcct cccacacgat      600
tcttgtcctt ttggtccaaa tcgaggccgg agtcctttaca ctctcatcgg ccgctacttg      660
tgcaagttgc gcgtagcggg ctaactacgc acctccttgc ggtcaaaatg ttgcaaaggg      720
tcaaaaccct tcactcgcat gcgaactgcg ttttgaactt ggaggcatca aagagcgtga      780
taggccggc                                     789

```

(2) INFORMATION FOR SEQ ID NO:668

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 651 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...651
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:668

```

tagaggatcc ccatcaagtt tggctccttg ttcgacgaag aactaatca gataataaca      60
gatagatatg gaagacgaat tgctgaactt taattatagg attccggttt gcccgttatt      120
atcaaggtaa tcggagtcgg cgggtggtgtg gcaatgctgt caaaaacatg taccacggca      180
aggtgcggga tgtatcttcc tcctgtgtaa taccgatgtg caggctctcg accgaagcga      240
ggtactgata ggctggtact cggccgtgag gtgaccaacg gtctgggtgc cggtgccgtc      300
cggaagtggc acgacgagct gcagaggcca gcgaagccga catcgcaaga tattggatga      360
tgcccatacc cgtatggtct tcgtaacggc cgtatgggag gcggaacggg taccggtgcg      420
gcccctgtca tcggtcggat acacgtgaac tcaatatcct cactgtcggc atcgttacca      480

```

```

tcccattcgt ttcgaaggca agcgcaagat tctgcaggca ctccaagggg tggaggaaaag 540
cgcaaaacgt agatgcctgc tcgtggtcaa taatgaacgg ctccgcatat atacaagatc 600
tttaagcttc gacaatgctt tttgccaagg cagacgaaca ctgaccaacg c 651

```

(2) INFORMATION FOR SEQ ID NO:669

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 898 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...898

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:669

```

gtgctgatgg tcattttctt ccttgctgtc ggtttggaga tcaagcaggg attttggtcg 60
gcgaattgtc ttctttcaag aaagctatgc tccccattta ggagccatag gagggatgat 120
cgtcctctgc cttttcttcc tgctggtgtt catgaaggcc ctggtgcaag aggtgctgcc 180
atccctatgt ctacgggtata gcttttgctt tgccggcctt ggctgttttg ggaagtcggg 240
ttccgcaagc ctcaagggtat tcctgacggc tttggctgtt gccgacgata taggggtatt 300
atcggtattg cgtctttcta tagttcccat atcaacatcg ggagttggcc attgccttcg 360
gtatcctatt catcatgtat ttgatggggc gttgcatgtg agcaacttag ggctttactt 420
cgtctgtact ttctttgttt gctctttttc ctacagaagc ggtatccata ccacaatagc 480
cgggtgtgctg cagcttttcat gattccggcc cgtcctggac tacatgccaa gaatcttcgg 540
ccgagatgcg ttcccttttc gaggcaatgc ccaatgacaa gatacgacat caggtagctc 600
tctgatcttg agccataacc aaatcaacgt aatcaaccga tgcgtaagat tgcgcgtaag 660
gctataagtc ctatgcagct catggagagt atctcagccc gatagtaggc tacttcgtct 720
tgctctcttt tgctttgcca atgctggcat cacgctcgga ggagtcacgg cagatgcctt 780
gngggcgtgc ccgatggctt gattcttggg cttgttgtcg gcaaaccctt gggttacttt 840
tttcacctat ggtttgncaa gatgaagctc tgcccttggc ccgaaggaat gagccccgc 898

```

(2) INFORMATION FOR SEQ ID NO:670

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 610 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:670

aagtcgctgc	ccatgaagta	gtctttcttg	gccgatgctc	cactgatgca	cgggtcttct	60
tcatagcagg	caggtagagc	catttgtcat	catccttacg	atctgatcat	aatcccatgt	120
gaggaaaccg	gtgcctttga	catcgccgga	tagaggaaaa	acataatagt	cttcttgtct	180
ttcttatcct	taccagtc	atggagtagg	aaatgagttt	gcgctcacgt	acggctcctc	240
gtttataatg	agcttcatag	tgagttcgga	gcgacgcgta	tcaccgtcgg	ggcgtctttt	300
acgcgctgtg	ctatgtcgcg	ccctgtcttg	gcgtagatgc	tgaagagacc	attgctacca	360
tggctgtcat	gaggggtggtc	tttgccaatc	gttcatcggt	ttctgttttt	gttagctgtt	420
ctatatattag	tcttccccat	cttcaggaag	gcaaaaatgt	acaggcatat	gcctaatacgg	480
taaccgtgtt	gggagagatt	ggtctgccgt	cttttttgaa	accgatacgg	caaaatcttt	540
ttcccgaata	ttcggaatcg	tcggaacagg	gagtggcgtg	atgcagaatc	tgccaaaagg	600
gctgtgaaca						610

(2) INFORMATION FOR SEQ ID NO:671

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3208 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3208

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:671

ccgcaaatac	ttcgagaagg	acaaggctct	ggaacgacgc	ttccagatgt	gatgggtggac	60
gagccggacg	agctaagctc	catctccatc	ctccgggggtt	gaaggagaaa	tacgagaatc	120
accacaaagt	gcggatcaag	gatgatgcat	cattgcggcc	gtgaagttgt	cgcaccgcta	180
cattaccgag	cggttctgcc	cgacaaggcc	atcgacctga	tggatgaggc	tgccgctcgt	240
ctgcgatgga	agtggattcg	ctgccggagg	agctggacga	gatctcgcgc	aggacaagca	300
acttgagatc	gaacgcgaag	ccatcaagcg	agagaatgac	gaaagaaggt	acagttcctc	360
gacagggaaa	tagccgaact	caaggagaaa	gagcctcgga	gaaagcccaa	tggcagaacg	420
aaaaagatcg	gatcaatcag	atcagcagct	caagatagat	atagaggagc	tgaagtttca	480
ggccgatcgt	ccgaacggga	gggcgattac	ggacgagtgg	ccgagatacg	ctacggacta	540
tcaagcagaa	agagacggag	atcgacacga	tacagcagca	gctgcacgat	tgacgcgtgg	600
cggctccatg	atcaaggagg	aagtggaggc	cgacgactag	ccgacatcgt	gtcgcgctgg	660
acgggtatcc	ccgtcagccg	catgtctcaga	gcgagcgcga	caagctgctt	catctggagg	720
acgagctgca	caagccgtga	tcggtcagga	cgaagccatc	cgtgccgtgg	ccgatgccgt	780
ccgtgcagcc	gggcaggcct	tcaggatccc	aagcgtccga	tcggttcggt	catttcctcg	840
gtactacggg	ggtgggcaag	acggagttgg	cacgtgcctt	ggcgaattgc	tcttcgatga	900
tgagagcatg	cttacgcgaa	tagacatgag	cagtatcagg	agaagttcag	tgccacgcgt	960
ctgatcggtg	cgctccggg	tatgtgggct	atgacgaggg	tggccaattg	acggaagcca	1020
ttcgccgcag	ccttattccg	tgggtctttt	cgatgaaata	gaaaaagctc	acccggattg	1080
ttcaacgtat	tgttgcaagt	cctcgacgat	ggccgcctga	ccgacaaaag	gggcatgtgg	1140
taaacttcaa	gaatacgctc	atcatcatga	cgtcgacctc	ggttcggaca	tcattcgcga	1200
gcggatgcag	aacctcacgg	cggagatcgc	cggtcctcca	cggcccggac	ggccgatgag	1260
gtgatgcagc	tactaagcat	acgatccgcc	ccgagtttct	gaaccgtatc	gacgagacca	1320
tcgcttcacg	ccactgaccg	agaaggagat	ctacgagatc	gtccgccttg	agtcgatggg	1380
atcgtgcgcg	aactggccga	taacgacgtg	gtgtctccact	aacggagggt	gtcgtgacct	1440
ttgccgctcg	cgagggatat	gatccgcagt	cggagcgcgt	cctgtgaagc	gagtcctgca	1500
gcgatctcgtc	ctcaacgagt	gagcaaggca	ctcttgggccg	atacggtgga	cagtacacgt	1560
cccgtcctat	cgattgcata	gacggatcaa	tcgtcttccg	caacgaatag	tagcctcggc	1620
tgccttatte	ctcttattcc	ttcaaggctc	cttcggggcag	gtggctgcca	cttcccggag	1680
gagccttttt	tatgtttcaa	ggggtatctt	cgagtcattcc	ctaagggggtc	tatatagaga	1740
ggatagtatc	ctctcatatg	agacatagta	tcctctcata	tgagaccata	gtatcctctc	1800
gtatgagacc	atatatcctc	tcatatgaga	ccatagtatc	ctctcgtatg	agaccatagt	1860
atctctcatg	tgagaccata	gtatcctctc	gtatgagacc	atagtatcct	ccatatgaga	1920

ccatagtatc	ctctcatatg	agaccatagt	atcctcttat	taagactata	ctattctctc	1980
cgtattttatc	atgttttttt	caggaaatga	tttcaacttta	tgcacagagg	agaaagcaaa	2040
gggatggcaa	tatcggctgc	ttcgtctgtg	gttttcaact	tccatacagc	cgccatggag	2100
caaattgggag	gggcgaccgg	aaaaaggatt	gtttcccccga	aagacgaaca	agggtctcct	2160
ctgcggagtt	tatcgggtta	ccttccggaa	gtagctgtag	aagagatgcc	gagcagtgtc	2220
aggctgatgg	gaaaggccga	ccagataccg	gccactgcat	gggcgtattg	cccgatatga	2280
atacgaatcc	cagcaaatag	gaggtatcgg	tgccagcaat	acgtggcaga	aagctgctgc	2340
cggagccaga	aacgaacgcg	ctccattcct	cgcagagcat	tggaatagat	ggcttggagg	2400
gatctccgaa	ttggtagacg	acaacgggga	tcaacgtaag	ggcaacgatg	gcgccacctc	2460
ttcgtcgggc	gtgaagagga	aggaaaagct	gtgccgtgta	gcaaaagcag	tacaaccaca	2520
acgcaggcag	tcaaagcggc	cattcgggtg	cagtggcggc	tacgcggcgg	acttcgtcgg	2580
gtttgccgtg	cagcttgagt	gactgatgcg	gatgggtggtg	gcagcaccaa	gcccgtataa	2640
gacgagtagc	cgagcgtggt	gatgacgcag	acgatctggt	gtgctgccag	agcctatcgc	2700
cgagtcgccc	gacaaaaagg	acggcgatgg	tgaagagggc	cgatcgagtc	ccatctggac	2760
ggcaacgggg	agtccgacgg	agaataggcg	gcgtaggcgc	gacggatatg	catctgccgg	2820
cagaaggcgt	ggcggatcgc	tgccatgagg	gtctgcgata	gaggaaaagg	acgatggtga	2880
cgagcatcag	cggcggctca	acagggtggc	atagcccgca	ccgaggagtc	ccatttcggg	2940
agaccgcctt	tgccgaatat	cagcaggtag	ttcagcccga	cattgaagaa	ttgcccgata	3000
tggtaatata	catcgggggtg	cgcgatcgc	tcatgccgca	tagaattgct	tgaaggcatt	3060
gaataccgtg	acgaggaaga	ggcctccacc	tgtacccaat	aataggggat	ggcgagaggg	3120
cggagcgagg	gtgggagttg	aatgtatcga	acaggggaac	catcacggct	gccacacctg	3180
cgaggagagt	ccgatcgctn	tattgagg				3208

(2) INFORMATION FOR SEQ ID NO:672

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1747 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:672

tcgttccccg	caatacccg	ggcagacaga	agcgcgagag	tatagatcgc	tgcaggaagc	60
tttgagagag	gatttgccc	ttatcacttt	cccggccgct	tttgttcccc	tctgatcgaa	120
ggtaagggtcc	aggatacccc	gtggaagaga	gctttgtccg	tcaggcctac	gccagcaaac	180
gggatatagt	tccacttttt	tcgatggact	taattcaaag	cgtttctacc	ggatagagcg	240
tctcctcagc	tccttgggtc	taagttcaat	atcgggatgg	ctttgctgcc	ggataaatgt	300
ttcggagcaa	gggacgccat	tttcgcgtat	tcgcaggccg	gccattccat	ggcaatctct	360
tgctctgccc	ccccgagata	cggccgagca	ggacttcata	tccgttcact	ggtatatgac	420
ctcagcccgt	cggccttaaa	gaataacccat	taaacccatg	tgccctgaac	ccataattgc	480
tccgatttca	ccgagttgct	cgagcaggag	ctgactgccg	atcgttttct	gcggatgaca	540
acaaagccgg	caatgagatc	tatgttttta	cggccgaaga	agctccgctt	gcatgaaaga	600
agtaggccga	ctgcgagaag	aagcctttcg	gcattatgcy	gaggtactgg	caaggcgatc	660
gatatagacg	agttcgacac	catgccggga	gctacaaaca	gctgatcgta	tgggatccgc	720
aaaacaaggc	tataccggag	gctaccgctt	tatctatggg	cgggacgttg	ctttcgatac	780
cgatgcaagg	ctttgtctgc	aacggcagag	atgtttcgct	tcagtgatgc	tttttgcacg	840
attatctccc	ctacacagtc	gaattgggac	gttcgttcgt	gtgctccagt	accaatcgac	900
acggatgggc	acaaaggcca	tttttgtgct	gacaatcttt	gggacgggat	cggagcactc	960
actgtagtca	atccagaggc	ctctatttct	atggcaaggt	gaccatgtac	aaagactatg	1020
atcggcgagt	cgcaatctga	tcctgtatct	tcttcgcaag	cacttctccg	atccggaagc	1080
ttggtcaagg	ctattcatcc	cctaccgata	gagatcagtg	cggaggagaa	gccttgttct	1140
cctcatccga	ctttgacacc	aattacaaga	ctctcatata	gaagtgcgca	agctgggtat	1200
caatatccct	cctctcgtga	gtgcaatata	gctttgtctc	cggagatgcy	tgttttcggc	1260

actgcagtga	atgatctttc	ggagaggtgg	aggaaaccgg	catattcatt	gctgtgggta	1320
agacctggaa	gagaaaaaac	aacggcacat	agagagcttc	atcctcagcc	ggacgaaaaa	1380
aaaggtctcg	acagtagcaa	tggccgatca	taacgaccgc	gacgccaagg	cgaagagatc	1440
gcgctgaaac	acctcaggca	gcaaggctat	agatagaagc	cctgaactgg	cagtcggggc	1500
ggcgcgagct	ggatatcgtg	catccacgtc	cagagaactg	gtcgttggtg	aagtcaagac	1560
tcgtaccgag	gctttctact	ggccccgaa	gaggctgtgg	acgcacgcaa	gcggcgatga	1620
tttccgaatc	tgcgcatcac	tatgtgcgta	tgtacgccat	cgatctccgg	tacgcttcga	1680
tggtatatct	gtagttttga	gtgctgatgg	ttcctcaaac	gcatacgaac	cagagaaaat	1740
gccttcc						1747

(2) INFORMATION FOR SEQ ID NO:673

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3757 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3757

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:673

gggctgactc	cgatcggtat	atctcctttg	agtaggatcc	ctttttcttg	gcataggccg	60
atacggcatg	cagctgctcg	tggagtaaaa	attgtacgag	cgatagtaat	tggtctccgt	120
tttcagttcg	ggagataccg	ccattcgtcg	atlttggttt	ttccccacgt	atattcaggc	180
cacagatgga	gtggcatccc	tcgtacttgt	cgcgcatatg	gcaaaaagcc	gcatatggat	240
ccaacaatcg	gccgtgctg	agacgaattg	acggaagct	ttcttgcgca	tcacttcgcc	300
ccttcctgtc	gatacagggc	atgcagaaat	tcctccttca	gagcaacaca	gccggataat	360
ccatttgctt	gagtgccttc	agtgtctcgg	ccgtctctcc	atltttgcca	tcagagcact	420
attcttcagt	cgtggtagcg	ctccaaatcg	gcatagatag	gatggatggc	gatgaccgat	480
actatattat	tggataggag	tcgcgatagg	agcgtgtgta	agtgggtgtc	ttgatgggcg	540
gagctgtata	atgcgctggc	cggtcattgc	cgcccagtc	accatacgcg	nagtgcaccg	600
aagtctccta	tgccccaatc	cttggtgggtg	cgcatcgaa	tagggggatg	acggtgccgg	660
catagcgtgg	catataatca	ccctcgggaa	acagagaccg	gccaaataga	cggcaccata	720
ggcatccgtc	tcttcaatcg	gtaagatctg	ttttctccct	cttcccaacg	gatgtcggag	780
cagtgtcttg	tccggcaatg	aaaaacttat	attccaaaag	tggaggtaat	tcaccttctc	840
tagcgtgata	gaccattcgc	cctttcccaa	atgggtgcatg	gccgggcttg	ctccactgac	900
cagttgccaa	gagcaggact	attgcccgtc	aacagatctt	ctggctcgggg	tgaacacatg	960
gagcatatag	ctgcacgacg	ctttgacgcc	ctctttcggt	ggtttcgggg	cacgtttcag	1020
cttctcctct	ggcggaagaa	aacatcgtaa	aaagcagaac	tgaaaaaggg	tgcattttcg	1080
gtcgatcgat	ccagtaatcg	tccatcagca	ctcgtttgta	accatgacca	ataccagatg	1140
gtgcatgcgt	ttccactcct	tgcgaatggc	gttgccctcg	cgtctcttac	cagatagtaa	1200
tactgtatat	ccttgccggcg	accgttatga	tcacacgttc	cttcccatct	gtcctcgccc	1260
gttgctgtca	gctcaaggca	agtgtctcat	cccaatttcc	caattcggcc	gaagagcccg	1320
atagcagagg	cggtgcccc	aatcggtctg	atacttgatc	gaaaaaacta	tcccatcggt	1380
cttacgaata	tctcatctca	ttacagccga	tcgatcagcc	atlttatctcc	tcataggcgt	1440
aggcggcaaa	gctccccagc	caatgatcgc	accataattg	ctattgaata	tctgcttcat	1500
gccctcttcg	taatgccgct	ggctgcttgt	cgcatccgca	ttccgatgcc	atcattcgcc	1560
ggtaaagcct	cgctatagct	cccatacacc	acgctctgga	aaaggaaagt	cctacgaatg	1620
gactatgtga	tagtcgttca	gatcggatac	gatgggaggt	gtacacgacg	ttccaatccc	1680
tcggctgtaa	aaaactgttc	gaaccattgc	cggtagtatc	ggcaggcatg	attcgtctca	1740
tcagatcggc	ttcctgcagc	gaagagaaaa	gaagtcctgt	gcattaggtt	cccactcagc	1800
cggtatgggt	cggttttggc	gaagaggtcc	aatgcttttt	ggcggagtga	atcccgaata	1860
cactgtctcc	catagcaaca	gccagtcgt	aggcaaaggc	catggcgaaa	gcgagttgga	1920
gtgcgtaccg	atcctatcgg	cgtaggtcat	cttgagagaga	gagcttttca	ccgtgctacg	1980
atagtccgag	agagagggga	catatgccgt	gccattcttg	ccgcacggct	tgccaagtgc	2040

gaagacacgg	cagcatccga	gatagccgaa	gcaattcctc	atccaatttc	aaaagccaag	2100
cccattcctag	gtacgctcga	acgtcgcctc	cccgggtctg	tcgaaatagg	ccgtttggct	2160
gcgagctttct	ccgccgtaaa	cgaatgatcg	agagcagcga	cgatgtatcc	atcatggcta	2220
aatcgggtac	gatgcgaagc	gtatgtacca	gcatcagtg	ctgtgtacgc	tgctgtgcca	2280
atcgaatgag	ccaaagaaaa	cgggtgcaac	tgagaggggg	tcagtcgggc	atcggcttcg	2340
tcattgatca	ccgtcctgtc	ttattagggt	attctgtcgt	aatactcttg	aggggcatcc	2400
tacgaggcgc	agcagcgtac	tcgaatcttg	cgccgacaag	agataaacag	aagtaaaagg	2460
gaaatgatgg	tgacaattct	tctcataatt	ttcgagggaa	agcgtacaaa	tttaagactt	2520
tggcctgatg	aataccagta	aacgcttttt	tcctcgctga	aagctcgtag	agtataataa	2580
aaagagtgtg	ccgaagtctc	acttcacact	ccggcacacc	cccccgata	cccttttagga	2640
aagggtagaa	atagcttagt	aagtcagctt	catagagcga	ttaccactt	tgacgtgaac	2700
gttcgccct	ggcctaagtt	gacaacaata	gaccggttg	ccgataatcg	ctataaacca	2760
aacgaccact	gaaatcataa	atacttacag	cctgccatga	acattgtcga	tatggatatt	2820
atctccgata	acctgtacca	taccttgcc	atgcttaccg	agggagtcag	attcgtggga	2880
gaaggacaga	cccgaagat	tgagcggac	tgaaaggagt	cgttttgtaa	ccttgatatt	2940
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cgctcgggca	catttacatc	gatcgattcg	ctttccaata	tctcttgaag	aggaaaggat	3060
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ttccggtgca	tatacgcata	tatgccgatt	accgaacgct	ccgttccctt	ggtcaaagaa	3180
acgttaatac	cttccactga	tcgaccagtc	cgctccgattc	attcagatac	agcactctga	3240
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ccttccacct	gattgccctg	gccatcgctc	ccacgtatct	cgtagcatag	agcttcacac	3360
tcaagtctat	cttcccgcga	ttttggaaag	atccaaactcc	ggtgagatca	ggcctgcac	3420
ggtgtgattg	aaatgtactg	ccatgcatcc	aagcagatat	agtccgtgta	gggagcatat	3480
tagtcccttt	ccagccggct	tgtaccagat	cgctcaggta	aacctcatgt	acgtataggt	3540
agacggattt	tctatcgtcc	agcctgtcag	ttctccgtag	gagtcctttat	tccatcgaag	3600
ttttcgtcgg	taacaaagaa	tgccgctcag	cggcagctgt	acgcttgaag	cgagcgaaat	3660
agttgtagcg	ttcgggtgaag	gtacagcgtt	ccatgaagcg	gtatagggtca	catcttctgc	3720
ggatccgtga	ggttattcac	cggatttcat	nttgggc			3757

(2) INFORMATION FOR SEQ ID NO:674

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1658 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:674

tcgaactcgt	gtcggatgag	acgaccgtct	cctcggcgga	tatcaaggcg	tctttgaccg	60
cgctgcaaaa	gtgctcatcc	gtctgcttca	ggacggcaga	gcattgattg	tggcgacatg	120
ggtacctacc	gccccagcat	tacggcgagg	ccggttcggg	cgttgatagt	gccgacaagg	180
tgacggtgga	gcttgtgaca	aggcgaaggt	catctatacg	cctcgtagatga	aggtcaaaaac	240
tgctccaagg	gcgtccgtat	ggagcgtgcc	gagcgtgtcc	ttgatgtgcc	ttacctctct	300
cgatcaagcc	gaatgagaac	aacagcggcg	gatcttcgtc	ctcgacaaca	acggacacgc	360
cggcctgtaa	acaaagcatt	taatagcgac	aagataaatc	tgaacgtcct	tattcgacaa	420
tacatcccta	aaggttcttc	ttcatcgata	taacgaccaa	acagatctcc	attatacaca	480
acaaaccgaa	ctcagaccag	gaaagaaaact	cggatttcaga	acgccgttcg	aatgcttctc	540
ccaaattcac	cttagtggtg	catttattttg	tggaaatctgc	acagccaaaa	aaagaaagaa	600
aaacgcaacc	gaataagaat	aattgctata	tttgcgtcgc	tatcgggatg	tagcacagtt	660
ggtagcgcgc	cacgttcggg	acgtgggggtc	ggaagttcga	gtcttctcat	cccgacaacg	720
ccgtcaatat	tccttgggat	tattgacggc	gtttttttgt	ctgtaacaaa	tgcaaatcct	780
caccctccct	aaacagagag	aactgacgga	gggggtctgca	aaaagggcag	atagttacat	840

gtttttgccg	aaaaagaact	gcatcagcag	caaattcaag	acagcaaagc	acctcccatc	900
aagacgatct	ggcgctgttc	aggcttggga	acagaaaata	ggccactatg	ccggtgacga	960
agatgaccaa	tatcagaaaa	tgatgatacg	tgtaatagct	gatttgcgga	gcttcattat	1020
gtcattgtca	aagagaaaaa	aatcagagcg	aaagagcgcg	gagtttgtag	ccacgagtcg	1080
aagttcctgc	accagtcctt	tttcgccgat	gaggtgaccg	gctcctaagc	tatgagagtg	1140
ggctttgcag	acagtagcgc	aggatctttt	tccatcatcg	tgcattacgt	ctatagacca	1200
aacgctccat	atcctgaggt	gtcattattg	accttcgaac	acggcttcta	tctgctgagc	1260
cttatagtc	ctgaaagt	ggctaaagga	ttctgctcct	tttgtatatc	tcgaacagtc	1320
ttagcaggtc	tttagcttgc	tctttcaggc	ctttggaaaa	gaggagatat	tgatagcatc	1380
ccaagcctca	tcctgcgttt	cgaaaaacgc	agcctctttt	cgtcagcgag	tccatgaacg	1440
acaacgccga	catccatcgg	ttcttgcccc	gaaggcgcat	agtctcggcc	cccatactga	1500
caaagaaaga	aacgatagag	ggcggagggg	tatctggtcg	acagaacca	tgccggcgga	1560
ttggaggatt	ggttcaattc	ctccagctct	tcaggagaat	agagcatgnc	ataagtgtat	1620
cgctcggtag	catcatgttt	gcttgcaggc	gcggcatc			1658

(2) INFORMATION FOR SEQ ID NO:675

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 809 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:675

ccttgccaaa	agtaacaaag	gaagcaatga	ccatggacaa	aagaactgtc	gacagccagt	60
attacagagc	ctaacgtaaa	gagggccggc	agtatgtgac	gggcttcata	ctcccgggat	120
gccgtctttg	caaatagaata	cgggcaaacc	ggagttgtac	acctgacgga	agaacttctt	180
aaaatcgatt	cgccgttatg	gaaaacaaag	gcttccggaa	acaagcatac	gttgtatccg	240
gccttaagag	acgcagacta	aatcaatat	cttcaccgaa	gcgcatctct	tccgaaaacc	300
accgagttgc	cgatagaccg	aaagtttgca	gccaaaattg	aaatgcgagg	atagaacttg	360
tccagtcgta	ctcttctacc	cccacgaatg	ccccggtcgt	gaagaaagag	gtcatcgcat	420
agttaatggc	tttttgtatg	gtgagaatcc	ttctgctgct	gcatcagggc	cgccgaaagc	480
atctgcttgc	tctgttcgat	cctttttttt	actgcggcta	tataaccgct	cggcagtaca	540
catccgagtc	caatatcaac	agatatctgc	ccacagccat	tcgtgcacaa	tgttgcgcgc	600
agcagccggt	cctccattcg	gcactcttac	atactgtttc	ggagaagttc	tctgacgcga	660
gtccacttct	ttgtcgcagc	acacagcgaa	ccatcttcta	cgatgatcac	ttcaaagtcg	720
ctattcgtct	gtatagcaga	ctctccagca	gctcccgcac	ttcgtcgggg	cgattataaa	780
cgggataata	atagagaaga	ccgnngggg				809

(2) INFORMATION FOR SEQ ID NO:676

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1028 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1028

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:676

ctgtctgata	ttgcccaagt	agatggcttc	tggatggcgc	aaagatgaaa	tgtccaatgt	60
gcagacgggg	catcggaactg	tactggaaga	ttaagaacgg	agtttaaccg	tccgatcgac	120
gaatcgaagt	tcactgttac	ttctctcaga	aagggttctct	ctaaactatg	gaagtgaaga	180
aaaacacagt	ggtgctcgcc	ttctgatttg	gttcgtggcc	attcttctct	tccactcctc	240
acggcggtgg	gacaggaagg	ggaggggagt	gcccagataca	gattcaaagg	attctggata	300
cctaccatgc	cgtacgcagc	tcttctcctt	ttgatttcat	gagtcgcgta	cgagagttag	360
aggtgagctg	gagaggtcgt	tcggtaattc	gaagtagccg	tatcgggtcaa	tgccacctac	420
aatgctctac	tgaagacga	gccggcttac	gtttacgtga	agccttcttc	gagcatcagg	480
aagagcattg	gggttgccgc	tcggacgaca	gattgtcatt	tggggggctg	ccgacggttg	540
cgcacacagg	atctgatctc	cccgatggat	atgaccgagt	ttctggcaag	gattacgatg	600
atattcgtat	gccggtcaat	gcattgcgtt	tctctgtttc	aacgaatcga	tgaaagtgga	660
agtcgtggtg	ctgcctgtat	tcgagggtag	cgtctgcctg	tggatcctcg	caatccttgg	720
aatatcttct	cccttcgccc	attgctcagg	ggatgaatat	cgtctggaaa	gaagaagccg	780
gcaaccggcc	ttcaagggtg	ccaatatcga	gtacgggtgcg	cgatggagca	ctagctctcc	840
ggtatcgact	tcgctttggc	tgcattgcat	acatggaaca	aaatgcccgt	catcgaagta	900
cagggcattg	tgccgacgga	aatcatcgta	gcctcgctat	taatcgtagt	ggattggtcg	960
gcggcgacct	cttcctgacc	cgtcggacag	ttggttttca	agggagagct	tgcgttcaat	1020
atcgacca						1028

(2) INFORMATION FOR SEQ ID NO:677

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 755 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:677

acgcctgaaa	tgaagcagct	catctcaggc	atcaaagaag	taagcaaacc	tttcgggaga	60
ttgcccaaac	acaccgtccg	ctctttgggg	gagaaattac	cttacgggac	gaggaggtct	120
gcgaacggct	tttcgtcagt	cctcgtactt	gcaggactat	cggaacaagg	gcattatccc	180
ctacatccaa	atcgcgggaa	aatcctttat	cgacactccg	acatcaacct	actactgcaa	240
gagaatatgt	caggcagaga	actctatagc	ctgttcaacc	atagcttttg	ctcgtcaagt	300
aaagcttttg	attctctgcg	gaaagcaaaa	ctcttggaca	ccaatccgag	agtttttgct	360
gtatataaac	agggagcata	gggattatca	ctgggatatt	tccgagggct	tccaatgctg	420
aataatagaa	cctccagcat	ccgctctgct	tgcattcgca	caattggcga	attgaggaca	480
agagtaagat	atcgggtaaa	agttcttttc	ccttcatact	aagatgcaat	attgctccta	540
ggtaataatg	tcagcatctt	cctccatctt	ataagcaata	cctacactcc	atcttttgag	600
agaagaatgg	tatttttacg	aggctcgtgg	gctgtggata	agtagagcta	tctaaacaaa	660
tacttgaagt	ctctatacca	aattttattaa	ggtcggctac	tcttacaaaa	ggtatccatt	720
ttcttgataa	gcaccccttac	ccggctctat	gggat			755

(2) INFORMATION FOR SEQ ID NO:678

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2744 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...2744
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:678

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tcgacggcac tgaaccagaa cgtatcgctg aacgtataga ccaaggctca acgactccac      60
tgccgagtat cgtgattact cgtggaaagg atattttctt gacggctctt ccaatccgga      120
tacattgcgt actgtcggta caagtaccgg cggacaaggt gggtaatcgt ccaaaacaaa      180
aacaggatgg taaaggactg gccagtgcac tggtagcatt ggcaagccat gccacctgtg      240
acggacgctc gtgaaatgcg atatgatatt atagacgagc atgaagaagg gtgcccgggc      300
ggatgaccga tctccaactt gtttacgcag actatgaact cggacagtcc cacaggctgg      360
ctgtaggctc gattgtcatc agatagacga tactgcaact gcaaaaacgc cccaaccgac      420
gacattgttc agaaatctaa acgtttccat tccatatcat tgtattcttc tatgatgact      480
taaacgtatt agcaggggca aaccctactt ctgcgcgata aaaatgttga tgggagtacg      540
caaaaatccc agtgggcacg aatctgattc tccaaaaaac gcttataagc tctttcaccc      600
actgaggcag attggcaaaa aaggcaaatg aaggcacgcc gtcggaagct gcatcacata      660
ttttatcttg atgtatttac ctttgagaca ggtggtggcg tagcctcgat aatgggtagc      720
atcacttcat tcagctgtgt gtgggaatac gagtcgagcg gtgtgcatag acctgattga      780
ccgttccaac actttgaaaa tcctttgttt ggtcatagcc gatatgaaga gaaagggaaa      840
tccgtaaatg gagcaaaacg ctgccggatg gcattctcaa actcttgatg acggcttgac      900
ttttatcttc caccaagtc cacttgttga tcatacaacc agtcccttgc tattgcgctg      960
gataatctga aagatattca atcctgcgac tccacacctc gtgtggcacc cagcatcagc     1020
acacatacgc ggagttttcg atggcacgaa tggatcgaat aacggagtag tattccaatc     1080
ttcattcact ttgccccttt tgcgaatacc ggctgtgtcg acaaggtaaa attgagtccg     1140
aacttattgt acttagtgta tatagagtcc cttgtctgcc tgcaatatcc gtcacgatat     1200
gcctgtcctc tccgatgaag gcattagcaa ggagcttttc cctgcattgg ggcggcctac     1260
gatggctatt cgaggagtgt ttcgtccaaa tccgattgtc cgttctctgc cggcaatagc     1320
tcctcacctc tcgagacaaa tcgcctgttc ccgaaccgct gacagctgca atcagtaagg     1380
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caagagaagt cactccgggt ggttgtctgc gacgaagagg actacatctg ctctctcgac     1560
agcaatatca cttgcttatt gatttcttcc tcgaaaacat cttccgaatt gaccaccaac     1620
ctccggtatc gacgatggaa aactcccgcac cgttccaatg caccgcgcgt actgcctatc     1680
gcgcgtagta ccggcctctt cggctacgat tccacacgct tttgggtaag gcggttgaac     1740
aatgtgctct tgcccacatt cggaggccta cgatggcgac taatgctccc atatctattt     1800
ctactctatg attcgttctg attgttgctt gtcaggctac gaccgacgaa ggactaatcc     1860
aatgatagcc gaaggcacga agcagattat ccctgttgcg ccagtctttt tgaccttcac     1920
aaagatttcc aagaaaattt tctttccgaa gaaacgttcc aatcacgcgc ggccattgac     1980
cctacacggt tgatggccgc cccttttaggc cgatgattat tcctttttga gaattacgct     2040
ccacgatgat cagcgactga tacggataat ggtcttctcc tccttgaatt cctccacgac     2100
cacttctccg catagggaaat ttctttttga ttctacgca gtatcttctc acgaatatct     2160
ccgtaacgaa aaaacgtgcc ggcttgtccg tgagtgcac tttttaaagt aaggaggaga     2220
tgggggaatg aggctttcga tacgcttctg cagcatccga cgttaaagtt gttcgtggcc     2280
gaaagagggt gaatttctgc tttggcaata tattgcgcca ctctccaca agttgttcca     2340
atgcttctct atgctcaggt cgatcttgtt gatgaccaga agtacagggc attccattcg     2400
tatacgcgag cgagaaaaat agcattctta tcagccttct ccaccacgct gtcacataaa     2460
ccagcacatc ggcacccccg agagcagatt cgggaacact cgcatttctt gttggagttt     2520
gtaattggga cgaagtactc ccggtgtacg gaataaacga tttgcatctc cggcgatatc     2580
acaatcccca tgattcttgt ctggtggtct gcgccttggg ggtaatgata gaaatccgct     2640
caccgaaagc agatttatca gtgtactctt cccaacgttg gggtttccaa cgatatgaca     2700

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aatccccgaac ggtgaccgga ctcctctact tgcatttcga agct

2744

(2) INFORMATION FOR SEQ ID NO:679

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:679

cgcacgttgt	agtcggtctt	cctataaccg	aatgagagcg	atgaccaatg	atattttcca	60
taatccta	atagaataa	gtgtttatga	tttaagatgta	attgcaa	atgtttcattc	120
agcaactctg	caaaggtagc	aaataataat	ctgttaattg	cttttggttc	gataaatgaa	180
agcaggtacg	caaatgctat	ttcggacgat	accaatccac	taacattcgt	acacctgtgg	240
ttatgcgac	cgatgcttcc	agcctaaggc	atggagcttg	cttacatccg	tcagttgcgc	300
atcgtgccgt	ccggtttgga	ggagtcgaac	tcgataaggc	cctgtaaccg	atggtccttg	360
ctatcagcga	agccaaatcg	cgaatggaga	ttcctccccg	gtgccaatgt	tgatatggca	420
gttgccgac	ttcttgagtc	cgtggggata	catatcggcg	aagtcgcaag	tgctccatga	480
ggaatacga	gcattcggcc	atctct				506

(2) INFORMATION FOR SEQ ID NO:680

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:680

gttctcgctt	cttcatgtct	aaaaaaacac	ttcgttctcc	tccgacaata	agttttttcc	60
ttgaaaagcc	tccgaaagag	cagagaatcc	ataaagtc	catggaaata	catcgtgtat	120
tcctgacttt	tttcttgcat	tttttggttg	caagttttcg	aatttggtca	ttctcgattt	180
gttttatttt	ttcaggatct	tcattttcaa	agaataagaa	accgtcacag	cttttagactg	240
cgagaacttg	gcaaagcgct	catcattaaa	aatattgcaa	aaaataatct	ggcctaacac	300
aactttttac	taatcaaagc	gagagtattg	cctcccgc	tgatatatta	taggacaagt	360
tatccaaaag	cctatagtca	aaaaacagac	ttgttctttt	cgataataat	aataactact	420
gtaccatcat	catagatgat	gtccaaacct	caacctcttg	tgcaactgag	cttgagcctc	480

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tgtgcaaagt ttcaacagct acttcttgtg gaagtgccac cgtttcagtt gcacctgctt 540
cggggcaaag cacatagcag ctaatgctac ggctaacgat gcgaaaaatt cttcatagtc 600
tt                                                                602

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(2) INFORMATION FOR SEQ ID NO:681

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 857 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...857

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:681

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(2) INFORMATION FOR SEQ ID NO:682

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...9859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:682

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(2) INFORMATION FOR SEQ ID NO:683

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:683

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(2) INFORMATION FOR SEQ ID NO:684

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2205 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:684

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ggcgatttct tcttgcactt cgggacgaat gagaggaatg ggaattttcc aaactcctgc      60
ttaccaatac ctgtaaggat tgttcccgaa caagcttttt gagtagttgc tgtataggta      120
gggacttgaa aagcgttagc aatgtcttgg attgatttga tttgagcgca caacatagaa      180
gccagtcgag cagagcattg gtcataatcg tccgttatca atgcacaact actcaaagac      240
ccctcataga tgaacaatc acatcgccct gggttacgat acgccttgca cgtggggcag      300
gtcttcacca ttttcgtaca aacagcctgt aatgtcgccc gactgccaat attagccaac      360
tcaatgtagc gatacttcat atcacattct gggtatagtt gctgtcttta atgggtgcaga      420
cctcaccaag aggagcgaca cgccagtgtg tgccgatact gcattgatgt aatcctcata      480
cttaggcaaa aatactctgc atcaatgcgt ccactttcaa ggaagctctc tttgagtgtt      540
ttacgttgta agcatctata ttggctacaa agtcttgcac ccctaagccg ccaatagata      600
gctctcagca gaggagtaga gggatatctc ctctgtcact tttgcatgga taattcaaac      660
agctctttaa cctgcatttg tatctcgcac ttaaaacagg tacaagtaac tcattccctgc      720
attcgcccaa attgaatgca tttggacatt gccagagaat cgctttttca tttgctccat      780
tccaattttg tattcaagaa cgttacaaga tagggggagt ttaatttgct attagagcta      840
acttaacagc aacagtatct tgagatgtgt tacattcatc aaactcacta tagatgctgc      900
aggatttgct gttttcgaga gtattatata attctaacga gagctgtttt atgattatcg      960
tcattgtatt ctctagggat cagacaatgt ctgtggtatt aattttcatc cccttcaagt      1020
tagagataca caaaggggga ctccgctgtc ggaaaaatta cctgcattca cattgaaata      1080
ccttttctta ccactttgca ttctttctgc aggggtgtgt attgcaagcc tcaatcttac      1140
gtctataact caggtatgta cggtcatata gttctgatct attctgaaat attctagctt      1200
agacaacctt acctccgtag cttccgcccc tctaacaaag cgttgtactt tacttcgtca      1260
aaggggcgtc cgcgaaaaag agagtctctc tttcttagcg aactctgcaa aggcttcagc      1320
tatccatctt cggtcagtc atcgtggttg aaaagatcgt gcttaacgat aaatgcccg      1380
gggtgtcaag caaagggaac ttctcgccct cctcgttagt gtgctgcgat aaatcttctc      1440
gccactattg tccttgcttg gctcttgcat gtagcaaaag agatgttgta atcctctact      1500
cgtgggcata gtcctcgtc cacttttgca caaagagtag gctcgtctta gtacctgtat      1560
gaggcttaat acattgccat gcaagcctac cactgcaagg atgcgacagc gatcggcatg      1620
tattcgcgca aagctttgtc gctgctgttg ttaaaacgcc cttgagtaat acgatagcca      1680
tacgacgcgc cggcttgaga aaatcaagat tacgcctaca aagaggatgt ctcggtcat      1740
attcccagct tgcttgagct tggttttcga tatgtacct cactcatctg atagatgggt      1800
tctcctgtat taggagagct tcagaaaagg tcggctcgcc ctccacgatg gttgctccct      1860
tagggctatt ttcaaccttt cgagagacat actacggctc atatcgtagt tgcaagtata      1920
cgactctcct tgacctctcc cgcaaagggt gggtaggcca cacaatatcg aagggtgaagt      1980
cacgataact gtccttgctg gttctaagct tttgagtttc ttccaaccct cgaaataagt      2040
gtcttgccaa tcctcacttc taagttttgt tcccatcggt catagtcgag cgtattgagg      2100
tgtagcaatt ggtctgtcca tcaccagcaa tgagattgag cgtgcgagcc acacgtccgc      2160
cttctcgtca aaatcaatgg caaacacatt gncattcaca taatc      2205

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(2) INFORMATION FOR SEQ ID NO:685

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 466 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:685

ggtataaaca	accttacggt	tcatgtcgaa	cagagatacc	tgacgaccat	agctccggct	60
acatagataa	cgccattctg	aacataagca	ttagcctttc	gttggtaaga	acagcctcaa	120
caccttcacc	cttcttcaaa	tgaacaagac	atagatgttg	taatttaagg	taggaactgc	180
ttgatgaaga	gattcgacgg	agggaaagta	gcaccacccat	cttctgatat	agaaacaaaa	240
tctcctaacc	atcaacggca	gggccctgat	cncatccgat	aggatgtcca	cctgggtatt	300
agcaatataa	ccaactatgt	aattcttgcc	ggcttcaatc	ttgcactagt	cttgagagca	360
agattgttga	tagtctgcat	ttcgggatca	cttcttctga	ttgggccaaa	atggtcatat	420
catcagccca	gactgcagat	ggtacttgca	cgctttatat	ccaggg		466

(2) INFORMATION FOR SEQ ID NO:686

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 784 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:686

gcgtacgacc	ctttcgatgg	ggcataaaca	acgaaagaaa	acgagacaaa	acaaaaaacg	60
aatatagaat	tatgggaaaa	atcattggaa	ttgacttagc	acaacgaact	cttgtgtctc	120
tgtattggaa	ggtaacgaac	ctatcgat	ttacaaacagtg	agggcaagcg	cacaacgccc	180
tcggtagtgg	cttttgggat	ggtggcgagc	gtaagggtggg	cgatccggcc	aagcgtcagg	240
ccatcccaat	ccgaccaaga	cgatatactc	tatcaaacgc	ttcatgggcg	aaactacgat	300
caggttttcca	gagaagtggg	gagagtggca	ttcaaggtag	tactggggac	aataatactc	360
cgcgcgtaga	tatagacggg	cgtctctata	cgcgaggaa	atttcggcca	tgatccttca	420
gaagatgaag	aagacggccg	agactacctc	ggtcagggaag	taacggaggc	cgtgatcact	480
gtgcccgcac	cttcaacgac	gctcaacgct	aggcaacgaa	agaagcagga	gagatcgccg	540
cctgaaagtt	cgccgtattg	tgaacgagcc	tacggcagct	tctctggcta	cggtctggac	600
aagtcgaata	aggaatgaa	gatcgctgtc	ttcgactggg	tggcggtacc	ttcgatatct	660
ctatcttgga	attgggcgac	ggcgtttcga	agtgaatcg	accaacgggtg	atacgcacct	720
cggaggagac	gacttgacca	cgtgatcatt	gctggctggc	agaagagtca	agtctcaaga	780
aggt						784

(2) INFORMATION FOR SEQ ID NO:687

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 713 base pairs

(B) TYPE: nucleic acid

- (C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...713
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:687

cagatcacga	agaccagcgg	gcactccctt	ttgggcatag	gcgatttata	tcgccaagca	60
tcgtaatggt	cctgtggatg	atgtacgttt	gcgctccgag	cgagttgcc	agttcctacc	120
tcttgaggcc	gagagcatgg	tcaaacgcat	tcccgtatcg	gaggctcacc	cgtgaaaatg	180
ggtgtcggca	acggatgttc	gccccctccc	tacctccacc	gaggacaatc	ccctcctttc	240
aggccctatt	cttcgggcac	atccgaggcc	gatttccctcg	ccgaagcatc	gggatcgaca	300
accctttctg	atattatcag	gaaacgatat	tgcataattt	tgaccaatat	acatggctca	360
ggctcaatta	gagcctaata	tattagccat	ccttaaaaag	cccttatggg	acaactagat	420
agggttcgg	gcaaagacga	accacggtat	atagacagat	cgaactgagg	ctaaacacgt	480
gccaaaaaag	tttcaacaac	gaagaggagt	ttggaatgat	tccaaataag	caagtgaag	540
aagtggacat	tgaagtcgaa	aagttgagga	tacggacttt	ttcaagtcaa	atatgatttt	600
tggaagagaa	gataacgata	tatatataaa	cagtttagat	aaatatatag	atcgttttcg	660
ttttgtatat	aaatcgtttt	caattttata	tagatcgaaa	gtcattttcta	gag	713

(2) INFORMATION FOR SEQ ID NO:688

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 898 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...898
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:688

ccagaggaaa	gcaagggttaa	agatgagcgc	aaaagcttat	gccaatatca	tcaaagggtga	60
caaagatacc	aagatgcata	tcttcgaaca	ggtaaaattg	agcttcgctcg	tgctgatgct	120
ttgaatatca	actattcggc	tcgtaagaca	ccaaatagta	tccttgtaga	agaataaata	180
cccttataaa	aggctgggat	gaggaaactc	acgacacagc	ctttttcatt	acttcactgt	240
cataagtttc	cttagcagtt	gtaagaatgt	tttttcagcc	tctgactaat	agaaaatata	300
cggaaatggg	ttttttgtgc	aaaaatcagc	ccgaaaattt	gtttgtaacg	taaaagcgga	360
taactttggc	acagaaaaag	gtttatgaca	gaatccatcc	gccccctcct	ctcatagata	420
cctctactcg	cgtttgctca	gggcgggttg	tgctgcagg	actattatct	cacaacgggt	480
tagccatgtg	gcaattcgca	tgctgctaac	atcggcggtat	tcgtacaaga	ggtccttgacg	540
aggcaatagg	cttaggagtg	aagccttcca	tagtagctct	aagttccgtc	ccggatcata	600
taccggacta	cgcacgggat	cgtccattgc	caaagggtat	gctttggact	cggaataccg	660
cttggtgtcg	ttcctacttt	ggagttattg	ctgaggctgc	acgaccactg	tctcaacctg	720
attggttgat	ttgcctatga	tcgacgccag	acgtatggaa	gtttatacac	cactttttcga	780

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ttccaaggta aagcccttac tgatacactg cctttggtga tagacaatga ttcttttccg      840
aagaactcaa aagcgcaata tcttattcgt tggtgatggt gcgaaaagtg tcgcccct      898

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(2) INFORMATION FOR SEQ ID NO:689

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1143 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1143

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:689

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cgcacggcaa tctgtttccg gcacgaagca aagatgctcc ctccgataat atcagagaga      60
gcatttttcgg aacgacgttt ctgctcataa caaccggcca tgcatagtcc aacgatgcca      120
aaagctgcgc cagccgatcc acaccttggtg cagaggcttg tccagcatag gcttcacaaa      180
catattcagc tcggcagcag ggtaatcttc agtctggtat catcgggtgc agcctctttg      240
agctgatcca cacgttgaaa ggcatgggag agcgttctgc ctggaatttg atcagtcgtc      300
ctgacgacgc tctactattc gcaaagtaat ctgccccacc ggatcactga tagcgtacag      360
ctatcactgt ctatccccgt cagcttaatc ttccctcggg cagtttatcc tccatcccct      420
tgagattgga gaggtccgac atttggaata gacagccgag agaggtgctg ctatactttt      480
tattttcactt tgtattctgt catacttttag ggtctatata gtttgtgtac gaagtgcgtg      540
tccgaggaga aatcagatac cccacgtctc gggactcttg cgccattccg aagcagctcc      600
acattctcgg cagaaatata gcccgctccgc aaggcttttc tatcacctga tcgtagtcgg      660
taagcgttac aagcttgact tctgcttctc gaaattctgc tcggccatcg ggaatccatg      720
cgtatagact gcgacatacc caatactctg caaccgaaat tgcgtatggc ttctgctgcc      780
ttgagctgct accccccgta gagatcaagt cctcgatgac taccaccttg ctgtcggctt      840
gagttcgccc tccacaaggt tctccaatcc gtgatccttg gggacgagcg tacatacaca      900
aaaggcaatc cgagcagatc agccaccaat gtccttgagc tatagcccct gtagctacgc      960
ctgcaatagc ctgcacatca cgaaagtttc ggaaatcacg cgagccaatt ccaatttgat      1020
aagagagcga tttggggata agacaacggt tttctgttgt cacaatagat aggagcttcc      1080
aaccggaagc ccattgtgaag gggttgttcg gctgcagttt gatggcttca cctcgatgag      1140
ctt

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(2) INFORMATION FOR SEQ ID NO:690

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 595 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:690

gggactgatac	aacgacgatg	atatacctccg	gagcaaagtt	gtctactagg	ttacagactg	60
ggttgtgatg	atcacctgcg	actgcagaga	aacactctga	taagagctgc	gagtttattg	120
atcgccatag	ggtgtaggcc	aagctcagct	catcaataat	aatgctccga	ggtggctcag	180
gctgaagcaa	aagcgtgcaa	gacagatgaa	gcgaagcgtg	ccgtccgata	gctgataggc	240
gttgaataga	catcctccgn	cccttttttg	ttccattcta	gctggatcgt	actccattaa	300
gacgattggg	cataaggtta	aaaccctcaa	agaatggagc	aacgagcaaa	ccgtacgctc	360
tatgcgatag	aagtgccttcg	ggtgcttttg	ttgaggtaat	acaagaaagc	tgcatatttg	420
gcaccgtcac	gcctaaggct	agattgtcat	ctacacgaca	tagtgctttc	ataggggatt	480
gattcctgtg	catggaagtg	gtagatcttc	aatgcttgga	tcagttcatt	aacaaaatag	540
cctgtcccca	attgtaatgt	taaaggagac	tcattctacat	cgcgctcaat	tcacg	595

(2) INFORMATION FOR SEQ ID NO:691

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 532 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:691

gggacggtag	aggcataata	tcttcttcgt	ttagatgaga	ggagagtaca	cctccaaatc	60
gccttcgggt	tgtcctccct	ccacatcgtg	aaaaaccaag	agagggtcaat	ccatggatct	120
cccatacta	tccactcgcc	taaaagcacg	atacgacttc	atacaaagca	tcggcttttt	180
catttgtgta	aagcaagccg	ggtaggcccc	tgccatacct	gacgcattga	agagtttcgt	240
ccacgaaagt	atgtgacaag	atggcctatg	gaaaggtttt	cagcatggac	attagctctc	300
cgaaaacgat	aagctcattg	tcttgcgtat	caagtcatca	ttcgcttggc	attaggcgat	360
atgtacaagc	agtctacagc	aaatacagcg	gaacaggctc	cgcaaagcga	gtctttcggg	420
tcgccggact	aagagcaaaa	gataagataa	gcaattgtgc	agtcagcacc	ctcaagaaca	480
tggtcagagg	tagaccgtgg	cgtagcctac	ggccggagca	tcgnggttag	tc	532

(2) INFORMATION FOR SEQ ID NO:692

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:692

ttcccttcgt	tgagtaatag	cggatgtgtg	tgccgtgctg	caacagccgt	tcatcatttc	60
gctcgatata	tatgccttgg	gatgcttttg	acatcaagct	atgaagtcga	tgccgagtcc	120
gccggtcaga	tccaccactt	tggtccctct	cttatgaaac	ggcttttgta	cgaactcgtg	180
acagctccgg	aggattctcc	aaagaaagcc	gtgaaggaat	atacaaagaa	ctgataccgg	240
cccacgaggc	agcttgttcc	tcagacgagg	ccaaagttct	atctgggtag	ccacgcagcc	300
cgatactccg	gaggaatatc	attgctcccc	aacagaattc	tgtgggtgat	tggttggcat	360
agagcttaac	ccatcgcgta	atggcgagaa	tcctttttcg	gcgaatagca	tcgtccgtac	420
gtatactgaa	agagggaaac	ctcgaatgga	ttccctcaga	gactgtgtga	ccgcgacagg	480
attcaaacct	taaccggctg	atccgtagtc	agctactcta	ttcagtgagc	tacgcggcac	540
gcaaaagctg	aacattgagg	agaaaaagtg	a			571

(2) INFORMATION FOR SEQ ID NO:693

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 968 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:693

tttgtcctca	aattcgacgt	tttatccctt	tggcctgata	aaccagattt	agcctactat	60
ggccgggaag	aaggtgctct	aaagcgggat	tggcgagaca	ggatcatctt	acagcagccc	120
gtgagatgga	taggcaaacg	cttgagcaga	agaagagaaa	gagggtttgc	ccaagacgaa	180
tgccgaggat	tatcagtcgt	gatcaagctc	gactttaccg	acttgcccat	atccgtattc	240
atcaagagca	gagaaagaca	tcagctaagg	atatgcagcg	gaaagaggct	actacctcag	300
tgatatgttg	gatatgtatt	ggancaatat	ccctccgagg	gagaaatagg	agataaggat	360
acggagcaaa	cgagaagcac	tattcgtgaa	acaacagaaa	gaagagaccc	atccaggatc	420
tctacctctc	ctgtgcccaa	gggataaaga	tttgacggag	tctcattata	tccatttggg	480
cacgctggac	atgaaagcaa	gactacggcg	aggattgcag	cctatccgtt	gaagaacggg	540
ttatcgataa	agagcgggtg	cgagaagtat	cgactcgtcc	ctacaaactc	tttccgtcaa	600
taaaaatctg	gctactgcaa	aacagatctt	tattttccatt	ccaaagagga	tcagactgaa	660
ctggagacct	gtctgcaatt	tttcaaccct	tggagaagaa	tggtcagatc	gagatctact	720
atgataagtt	gactagtttg	aaacacctat	tcaccctgaa	ataagaaagc	gtattgtcga	780
agccactgta	taatcgcttt	gatcagccaa	cgctatctgg	ccacggatta	catctggatc	840
atgagttgcc	tgtatttcgg	gagtataaca	agaccatagt	gcgatattga	tcaagccttg	900
tacattcgaa	gaccatgagt	tccttcggag	atatttgctc	agaaagctca	aataatcaat	960
cttgaaaag						968

(2) INFORMATION FOR SEQ ID NO:694

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2843 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:694

tgggtacggg	caagaccact	ttcatcaaag	ccgtatgcga	ggagctgggg	tctcggacgt	60
tatcaatagt	cccacctttt	cgattatcaa	cgagtaccct	cggatcagac	gggcgaactg	120
atctatcact	tcgactgcta	ccggctcaca	agatagaaga	cgccctgaat	ctgggtgtag	180
aagactattt	cgatagggta	gtctctgctt	tatcgaatgg	ccggagcttc	tggagccgat	240
actccgaacg	atacggttca	tgtccgaatc	gaagagctgg	aagacggcaa	gcgcggctta	300
catttctaag	cctgctccga	tgtcgttcgt	cattcgggac	ttcatctcat	cctctttgcc	360
atagtcggtc	tggtttcgct	actgactgct	ctctctgtcc	ggattggcta	ctgagcagcc	420
gaggcgcacg	cattttgatc	atgccttcgg	caagcggagg	gcacgtatct	tctatattat	480
aataggagtg	ccttgctgag	tgctgcggct	ttcgggctga	tcaaactctg	aaaagtgtct	540
gcagtaaaat	cgatcatcata	aaagagaccg	cccctgctca	gcctcatttc	gtatattcct	600
tataacctct	tcaaggggaa	acctctacct	ttacggtgga	atcaatttca	gaccgatgga	660
ttacgaaata	gagaacaacc	atgccgcagt	attcgcaggg	gaagtatcga	agtgatatgc	720
ggctccatgt	tcagtgcagg	acggaagagc	tgctacgccg	tctgcggaga	gctaagatag	780
cgcgacagcg	gtggagatat	tcaagccgac	catcgatata	cgctacgacg	aaaggatgtc	840
gtttcgcgat	acaagaatgc	tatcgcttcc	acccccgtgg	acattcggcc	aatatactgc	900
tgctatcctc	ccaagtggat	gtggtgggga	tgacgaagcc	cagttctttg	atgagggtct	960
tgtggaagta	gcccagcaat	ggccgatcag	ggtgttcgcg	ttgtgatcgc	cggattggac	1020
atggactttg	acgtcagcct	ttcggaccta	tgccgggctt	gtgtgccata	gccgactcgt	1080
gaccaaagtt	catgccgtgt	gtgtggaatg	cggccgattg	gccagctttc	tttccgtcgt	1140
gtccaaggcg	atcagcaagt	gatgctgggc	gaactgacga	atacagtcct	ctctgcagaa	1200
cctgctacag	gaaatgcagt	tctccccaca	aacagaagaa	atccattcga	caatatgaat	1260
agcagacatc	tgacatcaca	atcattgccg	gcctctccct	ctttgtactg	acattgggcg	1320
gctctccgta	gcccacaacg	atagcgagtg	gactctcggc	ggaaagctct	ttcttcggcg	1380
tggatacaac	gttcggccga	atatcaagcg	ctttgcattc	agcatacaac	atcgctacgg	1440
aaagagtggg	cgctctaccg	gcagaacgta	acaaggagat	aggccttatg	ccatcgtaac	1500
ggacatagac	gaaaccattt	ggacaatacg	cctaactccg	tgtatcaggc	tctcaggggc	1560
aaggattaga	tgaagagact	tgggggaaat	ggtgtgcaca	ggccgatgcc	gacacacggc	1620
aggagctttg	tctttcttcc	tccatgcagc	gaacaagggg	atcgagtctt	ttacgtcacc	1680
aaccgcagag	acaatctgcg	cgaagcaact	cttcaaacct	tcagcgttac	ggattcccct	1740
ttgccgatga	agaacatttg	cttagaccca	tgggccatcc	gacaaagaac	cccgtcggct	1800
caaaaatacaa	gaaagtatga	aatagtattg	ctcataggag	acaacttggg	cgacttccac	1860
cattcttcaa	tacgaaagaa	gagtccggac	gcaaacaggc	tctgggcctg	aagccgggga	1920
gtttggccgg	cacttcatca	tgctgcccaa	tcccaactac	gatcttgggg	accggcatgg	1980
tacggcggga	agtatccgcc	actgcccga	gagacaaagc	acttaaaca	ctgcactcac	2040
agaacagcag	atagctccta	agcaaacaca	tcgaatagac	agactcacac	tatggacaac	2100
aaacgacaag	caaaatagaa	agactgctcc	agaaagaact	cagcgagata	ttcctgggga	2160
tgcgaaatcc	ctgccggggc	taatagtttc	ggtaacgaac	gtacggttaag	tcccgaacct	2220
agcatcgac	gtatacacct	gagtatatcc	ccatcgagaa	gagcagcgag	attcttgaga	2280
gcatcaaca	caatacaaa	acgtccgtta	tgacctcggg	cagcaagttc	gtacccaact	2340
gcgcaagata	ccgatttgac	attctacata	gatgactctc	tggattatct	ggagaatata	2400
gccgtttgct	caatcaataa	gaaacggctg	ctctctatca	agacgctgtg	acttcccctt	2460
tttcatagcc	cgccgttact	tgttctcccg	caaaagatta	gtgcgggtcaa	tgtggtttcg	2520
ctcgtttcag	cgatagctgt	ctgcgtggct	cttcggcctt	ggtttgtatc	ctctctatatt	2580
tcaatgggta	cgaagcttga	tcatgacgca	ttcggcgagta	acggatcccc	ctcttatgat	2640
tcgttcgcag	acaattcgct	gataaaggca	gatgataaaa	ctctgctcac	agctccgaag	2700
cggaagggat	cggttcgtac	agctttatcc	tcaccggaga	aggtttgtaa	agacgaagta	2760
tcgacagcag	gctgtttctc	tcatgggtgt	ggagatcgct	atccccgcac	tgtgaagata	2820
gactccatcg	tctttgcagg	caa				2843

(2) INFORMATION FOR SEQ ID NO:695

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 786 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...786

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:695

gcttcttgaa	tgctccaaa	gcctccggct	tgctactgtc	tatccagcag	ctttgtacag	60
gctgatcggt	tcccaacgac	actgcgctcc	gtattcatca	gcagacggta	ttggatcact	120
tcgaactgta	gctgccccac	ggtcccgtaa	tcttgcgccc	gttgaactga	ttggtgaata	180
gctgtgccac	cccttcccca	tgagctggtc	gatccctttg	gccagttgct	tggttttcat	240
cggatctgat	tttcaatgta	cttgaatagc	tccggcgaga	agcttggcaa	accgggaaat	300
gaagctcttc	gccggctgtc	agcgtatctc	caatctgaaa	attccggtat	cgggcagacc	360
gataatatca	ccggcatagg	cttcatccac	cgctccttgc	gctgcgccat	aaaagccgta	420
ggactgctga	atcggaactg	ttgccgaggc	ggatatgctt	gtagttcgta	tttcgttcga	480
accgaccgga	caaatcttga	cgaaagcaat	acagctgcga	tggttgggat	ccatgttgga	540
tgtatcttga	aaacaaaacc	cgtaaattcc	tcctcgtgcg	gatccacttc	ctctccactg	600
cagccaccgg	ctggggagaa	ggggcaatct	cgacgaacag	ttcagcagct	cctgcacacc	660
gaagttgttg	agtgccgaac	cgaaaacacc	ggagcaagct	gtccggccag	atattcctct	720
ttgtcgaaag	gctgaaaaca	ccatcgatca	attcgatgtc	cgnacgcaac	ttctcagctt	780
gagttc						786

(2) INFORMATION FOR SEQ ID NO:696

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1414 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1414

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:696

gaataatggt	attaaaggtt	gataattcag	tatcaactga	ccggatgata	tcgatagata	60
taattgaata	atagaaaatc	tgaaagaaaa	atccgcttat	atcgacacaa	caatggagga	120
gaatcttttt	atgtaagcca	tgctttgcct	aatagcatga	gtatgaggtg	gaagtggcaa	180
aaaaaacaaa	atcggcgaag	agagggaaac	agctctcttt	ggccgatttt	gtcttttcgg	240
taataaacaa	agtcttttta	tagaccgtgc	tcgccccaaat	aacgctctgc	ttcgtagcag	300
ccttgcaacc	tgatccggca	gccgtgatag	cctgacgata	gtggggtcgg	caacgtcgcc	360
ggcagcaaat	acgccgggaa	cttttgtgcg	cgggacgaac	cttccgtcag	gatataaccc	420
acttcgtcca	agtcgaggtg	gcggcggaaga	tcttcgagtt	tggcgtatga	ccgatagcga	480
ggaaaaaac	tcgatggcaa	tgtccaccat	ctcttcgtcc	ggctctcctt	tgcgtttcac	540
agatgagcac	cttccacacc	gttttcgccg	aatagaccca	cgggtattagt	tcgaagagaa	600

cggttatgtt	cgccgtattc	atcacacgct	cctgcatacc	ttggaggcac	ggagatagtt	660
cttgcgtacg	atcaggtaca	cgtgttagcc	agcgatgcc	gatagagagc	ctcctcgcaa	720
gcagtatcac	ctccgccact	acggctactt	tcttcttgcg	atagaaaaat	ccatcacagg	780
tagccaagca	gaaacaccca	tgccggcata	tttggcttca	tccggccaagc	ctagtatttg	840
gctgtggcac	ccgtggagat	aataagcgta	tcggctgtga	ttccttttct	ccgtctatcg	900
tgatcctgta	aggagccttg	ctcaaaccg	ctttgtagcg	ataccggaac	gaatgtccgc	960
tccgaagcgg	gttgcttgtt	gcgcaggtct	tccatcagtt	ccgtaccggg	gattccttcg	1020
ggataacccg	gaagttttcc	acctcggtcg	tagtcgttag	ctgaccgccg	ggttgtatcc	1080
ttcgtagagg	atgggggttg	ggttggcacg	agaagcatag	atagctgggt	atagccggca	1140
ggtccggaac	cgatgatgag	acagcgtgca	tgttctacat	aatgatcggt	tgtatttgtt	1200
cgtttagtaag	tattgttatg	gatgaacaaa	gatagtagcc	ttttcgttta	ccgagcctat	1260
ccgtcgaagc	atacaccgct	ctattttgcc	gaaaaactgc	taacaaaaaa	gactgtgcta	1320
cgacaatcgc	aacacagcca	aacacattaa	caacaatctc	taaagtcaga	gcgaaagccg	1380
gactcgaacc	ggcgacctat	tcattacgaa	tgaa			1414

(2) INFORMATION FOR SEQ ID NO:697

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:697

gctccttgcg	agcattctcg	tgtttggtc	gatggcattc	gccaagttc	caaaggaaat	60
gacaagtcta	aagacgaaca	catccttacg	tgggcgttcc	ggaagagttg	gtgatcgata	120
ataacagtat	tgtagctact	tataattttt	attgactcca	tttaatggaa	tgaccatggc	180
ctgcgcttct	ttcttcatgt	gcaggatttg	ttgccttatg	tgggctatac	gatcaataga	240
atagattcca	ccctacggca	gatgagaaga	actatgagca	ggtggcagcc	agcagttcta	300
catctgtata	tggggcaata	aggaacagac	agaagtcctg	tacagcaggc	tctgcccacg	360
atccacaagg	aggattttgag	ctttggctat	gggtggacgg	cgaggaagac	tattacgatg	420
agccgatgta	ccttgccgaa	cggaaacgcc	ctt			453

(2) INFORMATION FOR SEQ ID NO:698

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:698

gagaaaggcc	tgcgcgtttg	atttcgatcc	gtcgaacttt	cttaagtagt	cgcttgtctg	60
cacttatctc	tgattaaggg	acttctactt	tgttcagggtc	tcattgacga	cagcatccgg	120
agtcaaaacta	ttagcctctg	cctcatactg	agtccgatac	ggtgacgcat	cacgtcatga	180
catacggcac	gtacatctca	ggaatcacat	aacctctatg	cttgatgaag	gcgtatgcac	240
gtgcaccaat	gctaaattga	tagaagctcg	gggcgaagct	ccgaaactga	tcattctttc	300
agagcattca	agccgaattg	ttcgggtag	cgcggtggcaa	aaaaatatca	actatatatt	360
gctcgatctt	ctcatccaga	tacacctgcc	tttcacttgg	cgcgcttcca	gtatttcttc	420
cgtagtgatt	atcggacgaa	ttctgccgac	cggccaccga	tattctgacg	aatgatctgc	480
atctcctcct	cttttgggga	tagtctatca	gcaccttcac	catgaatcgg	tctacctgtc	540
ctctggcaac	tgataagtac	cctcttgctc	gataggattc	tgggtagcat	tacgaggaaa	600
ggctcaggga	gcttgaaagt	cgtttcccca	atggtaactg	tctctcctgc	atcgcttcga	660
gcagagcact	ctgcactttg	gcaggacacg	gttgatctca	tcagccaaaa	taaagtttgc	720
gaaaataggg	ccttgtttac	ttgaaattcc	tcccgttttc	ggctgtacat	catggtacct	780
accagtcagc	tggcaagagg	tccggtgtaa	attgtatgcg	gttgtaactg	gcataatcag	840
tccggccaga	gttttgatag	ccaaagtctt	ggctaattccc	ggactccttc	gagcaggata	900
tgtccatcgg	ccaacagtcc	gatcagaagc	gctccaccaa	atggttctgt	ccgacgatat	960
tctgcgccat	accgtgcgtg	tgagattcac	aatgagctt	ttctgctcaa	taagctctgt	1020
gagagcctta	tgtcaatggg	tttcactcat	ttttttctat	atcttttctt	gctaaatata	1080
atgaagatta	tgacacccat	ctcatgttga	gatagacata	tagcatctgc	aggggtttaag	1140
cgcgaagttc	agccaacggc	cagcattcgc	tcgatcagag	caaagccttc	tccctgattt	1200
cagcaggcac	ctttacttca	taacgttggtg	gcggagagct	tccaagacct	cccacaaacc	1260
tgtttgtttc	atataaaaaca	gcggttgctg	ggttgaaatg	caataaacgt	tttacccgga	1320
tttctttccg	caacacgtgt	agcgtctccg	gctctgtcgc	aataacaaac	attttttgtc	1380
ggactcccga	gcatgattaa	gaataccggc	cgtggaatac	aaaagcagcg	atcgctactc	1440
agcactcgtg	gcgaatgaga	gccctcgtc	ccggatgaat	gagaatatca	gcacgaggat	1500
acagctccat	agcctctaaa	tggattcttc	cgtaattcgc	tcattgtacga	aacacgaagc	1560
attccaaatt	ccatctcccg	tctgtctttt	cgcgagatat	aagctccaag	gtttctaccg	1620
ggccaaagag	aatttttctg	tctcgaggca	agctctccac	taccttagtg	cattgctgct	1680
tgtacagcag	tagtccgtcc	aagcctttac	ctcggagtcg	tattgacata	gctaacgatg	1740
agtccatccg	ggttctgctc	cttcaccgac	gcaagccttc	agcagaggca	ccttcggcca	1800
aagaacaacc	ggctatttcg	tgggagtgag	gatagtcttc	tgccgcaaaa	taatcgaagc	1860
cgttcggcca	tgaagtggac	tccgcaaaaag	agtatcgtat	ccgcctccgt	acggcagcct	1920
gacgggacag	accaagagaa	tcgccgatat	aatcggcaat	tcctgcacct	cagggcgctgc	1980
atagtagtgc	gccaaaataa	tggcattcct	tctttcttga	gaagttctat	ctccttaaga	2040
atatectttg	tttgcataaa	aaaccaactt	aaagcttact	gagtaaggag	gaaattcatg	2100
ctgatgtcat	ggccgtaacg	ctatgagtca	aagcgcctat	gctgatgtaa	tcaacaccgt	2160
ttctgccaca	ctttgcagcc	gttcgagtg	catat			2195

(2) INFORMATION FOR SEQ ID NO:699

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 515 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:699

tctcctccga	ataaccctcc	gtgtggcttt	cgagcaatct	gtcataggct	cgttataagc	60
attctgcccc	ttgtagaata	cattatagcg	cgtagtgaat	tgtgatagaa	tcgggatgcc	120

gccgtattct	tcgatgtgga	gcaggacgca	taccgaatac	gacagctacc	gggatgagca	180
gatagaatac	gaggagtata	gaaatctatg	gctacgcatg	gacaaaggac	ttaatcgttt	240
tggtctaaagg	aacaaggcca	ccagcaccag	aatgatgaag	gctccggaag	ggatcccaac	300
ctataactgc	cccagagacc	cgtgaaggct	gccaaagccg	ccagattaca	gaaccgaaca	360
ggatcgaaga	gaagtgcgaa	gtgaaaagat	tctgatgctc	tgaggaaggg	tcaggagcga	420
catcagtagc	atgataccca	caaacggata	ctgagcacia	taccacacagc	cacagccacg	480
gacattaagc	tcttcacgag	gtgaacccta	attcc			515

(2) INFORMATION FOR SEQ ID NO:700

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI--SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:700

ggctgccttg	tcgccattca	tatctccggc	aacaattacg	atatctgctt	tttcggtttg	60
gctttcccg	tcttccttgc	tgctcaggtc	gggatgggtat	atattgggta	ctgcgaggca	120
agattgtttg	gtttatagga	aatgcccttt	gttgcttttc	acatggggca	ccatcgacac	180
ttatataccg	ctgcatgaaa	gataaaaagag	tcctcgattc	cgcagtcgcg	tatcaagggtg	240
atgactataa	cgtcaaggga	ttcgattttc	gtgctcacia	ttcagagaat	cccatcctat	300
tctcaaatat	atcaaaggaa	gtggagccga	tatcgatgct	ttgaagaggc	agtactgagt	360
cggaaaagca	actctcgtta	tgtggggcta	cgactttcaa	gaaatatctt	cccgaatatc	420
gctacatgga	actggtcgca	tctcgagaag	atagaaaagg	cagcggcctt	atgctcctgt	480
ccaaatatnc	atctcggatg	tgcaccgcat	tccataccga	gtccgcattc	atggcttcaa	540

(2) INFORMATION FOR SEQ ID NO:701

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2030 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2030

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:701

attttggggc	tgaacgacat	gtcgctttca	ctcactttta	tagggcctgc	cactgaaatt	60
------------	------------	------------	------------	------------	------------	----

cgggatcatt	gtcgacaaaag	ttcgacaaga	aaccgatacg	ctttttcccc	cttgttttatt	120
catttcgaat	accacaccca	ttagcggcag	gcattgtgac	ccatggattc	agaggtgcta	180
cccaatgaga	gatccacttg	tcaattttct	tctctccatc	ttgactgaag	agtaagtttt	240
tattgaattt	tgccctccat	tcagagagaa	cacatagtcc	acaaaactta	tttttgcgta	300
ttgttgaagc	cgggtgtaagc	gaaagccaaa	gcaaaagggt	tgcaccattg	taaagagaag	360
aaggcgaaag	atagttggag	gctatatcca	cacgtacaac	tgcacattgg	agaagtcttc	420
cttatacacg	agtttcgcat	ttgcgcgttg	gcacgcgcac	tgaagaccgc	aactctactc	480
ttatatcctc	gggcttattc	atgagctcta	ccgaccaa	cttgatgtcg	gattcattct	540
acccgttacc	acgatatcga	agtcttga	ctgataatca	tccgatggtc	ccaatccctc	600
aacttttggg	atgtggcacc	ttggtctttg	gagcggagat	cttcacattg	ctattgccgg	660
tgctgatatc	actgtgggtc	attacaagat	ccatccgttg	tccgccacac	tcctcctcgt	720
ttgtaccagt	ttttctgatt	gtactggacc	accttgacat	catctcctcc	catcgtctgc	780
gcttggcgag	aggacagagg	gttgcgacgg	cgaaagccgc	caccacgaat	ttggtaaaac	840
ttttgtcttc	atagtttttg	tctttttttt	gagactcaat	cgacaggagc	cctccagtct	900
cttgaattgt	tgattagcga	ttagtttgtt	acttgatttt	cacgagagca	cgatggctca	960
tgattctctc	ttcaccgttt	cgttccctgt	ttttactttt	tactgattgt	attatcgttc	1020
acccatggca	agagtgtcca	aaatcgaaat	cggaattcgc	cacaacgcgg	aatgcatgtc	1080
ggccttctct	gccacaaagg	aacggagtgg	cgaggagata	tacttggcaa	atcgcgcatc	1140
ttcttggaca	aatcacgcac	ttagcaataa	ggaaacacaa	aaaacatctt	cgttttggac	1200
aaatcgcgca	caaaaaaagc	gtaaactacta	ataaagaaga	tattacgagt	acaagtgcta	1260
aaaagctctt	ttcgatgtct	tttagagcgt	ggagaagtat	ccttttgcaa	ggaaaaagag	1320
atcgccaatt	cgctatcgga	tagagatgcg	gaatgctcgg	accaaggagg	gcgaagaaac	1380
aagaaaaaga	aaacaaaaga	gatgtcttgc	gcattgtcaa	aaacatctac	ctttgcaccg	1440
tcttaattag	gtagggcgac	aatgaatgat	tcactgtaag	acgatggcga	gatagctcag	1500
ctgggttagag	cgcatgatta	taatcatgag	gtccccgggt	caatcccggg	tctcgctacc	1560
gaacaaaagc	atgccgagac	caagtgtttc	ggcatgcttt	ttatgtttata	tacctaaatt	1620
ggggcaatag	aaactgcatc	tgactccaac	gggtaagaaa	acaggtcatc	gtcccaaact	1680
gaaatgcagc	agattatatt	atgattggag	agagtggctc	atgtaaaccg	gaaggaagcc	1740
atcaataagg	ttaacgaaaa	acctaaaaca	ctccaatgga	attttggctt	atatttgccg	1800
gcacgttcac	caaaaacgaa	caaatatgag	aatgatgaaa	cttacagcca	tgatgctggc	1860
cctttgtcgg	cactggcatt	ctcgtcttgc	aagaaagacg	aaccgacaac	gtggagaaga	1920
cccaatggga	aagaatgctg	accggcacag	aaatcaataa	atcatcgcac	tgatggatgg	1980
agagatcgac	gcggactctc	aactaccgga	tcggcaaaac	taaaattgga		2030

(2) INFORMATION FOR SEQ ID NO:702

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 837 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...837

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:702

gcgattttatt	ttgtgggggtg	caattcatgg	agtggcactg	gccgtacaca	actctgggtgc	60
gagatctttc	cgctgaatcg	ggctatgtcc	acggatatcc	tttttggcgc	agatggctcg	120
gacggatcat	tactttccat	ctcgtctttt	gggttgatc	ttcttccgat	ccgattccgat	180
ggcgggtggcc	ggacagttct	tggacaaata	ttcaacgact	tccatcccga	agttttcttc	240
caattattgc	cggctacaag	ggcgttgtcg	tactgatggg	catagggttac	ctgtgcattt	300
tgctcgtaag	ggtaagcgaa	acagggcgca	atccatgctt	gaggtgctcc	gttcgtcttg	360
caaactctga	tgctcgtttc	cctgatcttc	atatcattca	ggtacgcagc	tcggaaatac	420
agcccttcat	atatttccag	tctaaatatt	cttactgcgg	tctcctttca	tctaagtga	480
cgataaggat	tgctgtttag	gactctataa	gttcggcaat	cttccaaaat	gagactgttc	540
atggggagttt	gattgagctc	ttttgctgca	gagctgattc	ttagtgtctc	gggaaaggtc	600

aaacctccgg	tatatgggca	ccgagcaa	at	agaaattccc	caggtttcca	ttagagaagt	660
actcctttcc	tcgtcaaata	ggcgagaata	agaaacgatt	gtcagccgtt	tcttgctccc		720
tgcgatgatgc	aggaccgatt	gtcggctgtt	tcttgctccc	tgcgatgatgc	aggacgcgat		780
tgctcgctgtt	tcttgctccc	tgcgatgatgc	aggacgcgat	tgctcgctgt	ttctgct		837

(2) INFORMATION FOR SEQ ID NO:703

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 903 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...903

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:703

cttcgatgat	gcttggagtc	ctctcagatc	actgcgtaga	tggtagcgtc	tctttgcac	60
cctgctgcgg	gctatcaata	tcgaacctat	cctcggttcca	tgcccggcca	tatgttcgtc	120
ggttattaca	cggatatata	caaaaaaaaa	aaacattcct	ggagacaacg	atgatcgggtg	180
atgtcgattt	ggacgatttt	tccctgatga	gcagttggat	tcgacgatga	taggcaaatac	240
ccaaatcaga	tgtccaagct	gacttttcgag	aagtcgaaag	aatatgccaa	caagaataac	300
aggaaaacga	agctgacatt	cactccggca	agtcgggcta	tatttcttgg	aaatatccaa	360
agacgtgcga	aggcgaatcc	aatccatcgg	cagtagcatc	gcttttgccg	catcgtcctt	420
ttgaaataag	aatacgccgg	atgctatgtg	gcttacggct	atgcaggctc	tcagtaacac	480
tttctgacat	aaaaagtgtg	ccgaaaacgc	tgctgaagcg	attttcgaca	cacctcatc	540
cttatgctta	tatgaaaagc	cgcactgcgg	atagcgtaaa	ctccgaaaac	aagatttgag	600
gattccacca	cctttgtaat	ccgctgtgca	aagcaaccga	aagggtgcggc	ccgccatcag	660
cgatgaaatt	gtcctcggaa	tagttgtatg	atgagtttcc	ccgatctaac	agtgcggctt	720
attcctcgtc	ttctcgtatt	gcaaagttag	caacattggt	tagatttgca	attcctttgtt	780
tcatgatttt	gggtatgggt	acactttcgg	atcctaatac	gcgttctcga	cgttcaaacg	840
tattacgata	gttcgggttc	ttaggtaatc	tgctttgacg	atggggaagt	tttctccggt	900
ttg						903

(2) INFORMATION FOR SEQ ID NO:704

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:704

cgaaaaggta	gagataaaga	ggccgtgagc	ttccttgggt	aagacttatt	ttcagcacac	60
ccaaagcgg	agtttctgag	aaaagtaccg	gagtatctaa	gaggggtttt	tgctcgattg	120
ggggaggaga	tgtttgcctg	tttggcatct	cttccccctt	tccacaatgc	acttatgccg	180
gacagatact	tcggttattc	aatttaggca	tttcaactac	accatccctt	aggaatgggc	240
gagcgctgaa	gggtaagaaa	tggtatgaga	gatgctgcct	actcgaagcg	gcgcctatat	300
ctgcctcttc	gatgatactg	acgatgagct	tgccgtccgg	cgttaggtgg	agtcgttcga	360
agcaaaagct	gggccaagag	atcgctggcc	tctctgctgt	cgggtgtctt	ccacaaggga	420
tggtctgata	ctcggctatt	tggtggcaat	cagttcgagc	atttgttcat	gcgatgatct	480
gccatcttcg	gtgtagtatg	gatgacatcc	cgcacgacat	ctgccgcaca	gtctatgatt	540
gtacagggtgc	tgccagcagc	gaataggaag	agacaccgag	gggcgacaat	cgaacccgac	600
agattggagt	tcgtccacag	ctgccttcac	ggcagaacat	ccgacggatt	gaattcgagg	660
agttcgggga	agagaagttg	ttgctgtcga	tatgacgtct	tgattcgctc	gccatgaaac	720
gatcgtaaa	aataccttgt	gtgcgcggtg	gaaatcgacc	aaagccaaac	ccctactcag	780
agtatcacca	gataacggcc	gcgatggaca	tagcagagca	tatcggtgga	ggggtcgcag	840
atacggcaga	gggagtaaaa	tcggtcgagg	cgaacagctc	ttcgagcgga	tcggtgggtc	900
tgccatcttc	tcggcatctc	gcttggcttc	gactgcttga	agagttcggt	ccagcccata	960
tccggcgatt	gacgccgcga	ctgcggatag	gctccgtcag	tccggtttct	ttgaagggat	1020
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ttcagttttg	gtcgggtgga	tattgcatcg	atctgggagg	gttcaagatc	gaaatacagg	1260
aagtaattgg	gcatgttccc	tgaggaatga	tcgcctcata	ggcagccatc	acggctttgt	1320
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cgagcaccat	cggggcgccc	tacgaagccg	gatataattg	tatggggctt	ttcatcccga	1440
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cagggttcca	cctgaaaacc	catcgtccga	aggctgaaca	gatcctgaaa	agaagctatc	1860
ttgaagtggc	atgtcgctcg	aaagccattc	gggcacgcct	ttggctcatg	ccttcgctgt	1920
gtctgtgacg	cgtatcaatt	cgcgaccggc	ctccctgaca	ccagcctgat	aatggaagcg	1980
ccggcatcca	atgcgttttc	caatagctct	tgacgaccga	ggccggacgt	tggtattact	2040
caccggcagc	aatttgatgg	cgatactgtc	cggcaggagg	cgtatgacgt	cgctcataag	2100
atgacctaaa	aaccaaccac	gatagcaaac	aaacggctat	gagcaaagcc	aacgtaggag	2160
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actgtccgtc	cagctctgct	tgccctcctg	ttctacttcg	cgtctaatac	gttcgatacg	2340
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aagaaaagat	cgaagaagcc	ttcctctttg	gtgtccgtat	aggtcgggca	atataaggag	2520
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ggtctgtagg	gcagcgatgt	caatgagttc	tttctctcct	cttcggccag	agcccgtgta	2640
tgccagaggg	ctgccaaaag	accgctnaag	cgtcgcaaat	cggacagcga	tccgagcacc	2700
tgcaaaagac	gaatcccggc	tggcctgcgg	aaaagatcct			2740

(2) INFORMATION FOR SEQ ID NO:705

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2965 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2965

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:705

tccaggacgg	atacgccgca	tagctcccaa	ccatgcctct	gtgctgatcc	ggccgaagag	60
cggtagcggc	aaagagttga	tagccgaagc	tctgcacctg	ggagcaaacg	agcctcagcc	120
ccattcgtca	aggtcaattt	gggtgggttc	ccgaaagttt	gttcgaaagt	gagctgttcg	180
gacataagaa	aggagcttta	ccaatgcttt	ttccgacagg	aaaggacggt	tcgagctggc	240
tgatgcgga	cgatctttct	ggacgaaaata	ggcgaactac	cggtcggcaa	ccaataaaac	300
tgctgcgagt	gctacaggaa	cagacattcg	agccgttggtg	cgaagcgtct	cccaccgagt	360
ggacatccgt	gtgtatctcg	ctacgaatgc	ttcttgagc	gaatggtagc	cgaaggacgt	420
ttcagagagg	accttacta	tgaatcaacc	tgatacatct	gcattctgct	ccgctgcgtg	480
agcgtcagga	gatatacagc	tgctggtgga	agccttcagt	gaagcctttg	cccaatcgac	540
ggattgcccc	atgccgtttg	gagtgcggaa	gctatgagc	gtatctgtcc	atgcccttac	600
cgggcaatgt	acgcgaactg	aaaaacgtag	tggagcgacg	ctattgctct	cgggatcgag	660
agaaatcagt	gcccgggatg	tggtgcttc	ggttcgcagg	tgacggcagc	agaccactcc	720
gacgaacggg	ctttgccgac	atggaggaa	ctgctatccg	agagacgctg	actaaataca	780
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cagaatatcc	ctacgcgttt	tgctcctggc	agagtattgc	tctctctatt	gcttatggcg	960
atgactctcc	tatatcctcc	gtagagaaag	gcgggctctt	cttcattgctg	gctatagagg	1020
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ggcgatggaa	tgatattgct	ccgttcacag	gactatgcc	ctaccctgct	cctgtcggtc	1140
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tgtggactta	cccgatgatt	atatcccgat	cgaagaccg	ttggaagaag	tagcgcgaag	1380
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ccgaggtgag	gaggattacg	cggatgagat	cttcgatcgt	tcgttcagcc	gtctcttttt	1500
cagtatcgaa	accctgacca	ggagtgtcat	tcggcggaga	aagaagccta	tgaanaactg	1560
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aaattcgtgc	ttagtccgct	gcgatgcaga	gcaaatagag	cagggtggtga	taatctgctg	1920
cgcaacgcta	tagagagctt	tgacacagaa	aatgatctgg	tgctcggca	acaaagacgg	1980
ttctgctctg	tttggatcgt	cacaatctgt	cgtagaggat	aatggacagc	ctatcagcga	2040
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ggcttggtgc	tattcgcgaa	gtactgactc	gccacggctg	gtccttctcc	ctgaccccga	2160
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gtgaagcgca	aggaagcggc	cgatggctcg	tttatcctct	ttatctgggc	gatgtgtacg	2520
ggcattttct	tttggagctg	acttggctag	agatcggaag	gaaccttaca	acttgggaga	2580
gaatgaggtt	cacctcttgt	cgggactacg	ggcgactatg	atgccgtacg	cgaatatcac	2640
cgtgcctggg	ctgtatctgc	tatgagaatg	agcagatggg	gctctacttc	gtgaagatcc	2700
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tcattatgct	ttctgccaat	caataaaatt	cttgcgaagc	ctgcgcgaac	gaaaaatctg	2880
tttgcgagag	cagctttcgc	agtggaaagg	cctaagctcg	tcggcgagat	gctgcctttc	2940
atcgctgtcg	tatgcttgtc	ggcac				2965

(2) INFORMATION FOR SEQ ID NO:706

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1820 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1820

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:706

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acgtggtagg tacggggacg atagaagaga tcgctttgcg tategctcca ttgtggacaa      60
gttccgcaaa gtctctaact aaatccatcg tatggcagag agtccaattt cgtcgattac      120
gtcaagatat actgccgttc gggcaaggag ggagaggctc tacgcacttc cgcagggaga      180
agtatatccc caaaggggcc cggacggagg cgacggaggc cgtggcggac atgtctttct      240
ccgtgcaatc ggaattattg gacactgctg catctgcgct atgaccgtca tatctggcta      300
cgaacggaca gagcggcgga gccaaagcga gtaccggagc gaaggagagg atcgtatcat      360
agaagtcccc tgcgggacgg ctgtttacga tgcgatacgg gtgagtttat cacagacatt      420
accgagcacg gacagcaggt gtgctgctcc agggaggccg aggcggacac ggcaatacgt      480
tcttcaagac gctaccaatc aggcctcccg atatgctcag cccggcgagc cggcacaggg      540
cgtatggtga tcatgcagct caagatgctg gccgatgtcg gtctggtcga tttcccaatg      600
ccggcaaatc gacactgcta tcagtgtctc ctgctgcaag ccgaagatcg ccaactatcc      660
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atggcggaca tcccggcatc atcgaagggg cttcatcggy gaaaggactg ggactgcgtt      780
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ggactggaaa gctaaaggat acttggtgaa agaactcagc aaggagacct ttcacgagcg     1080
gacagcatag tacgccaagc tcttgatttg accagtctta catgggagag gaggacgatt     1140
tggtccggca tcgatagaag acgacgagga tgaagaggtc tcgacgacat tgattttgat     1200
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gtctatcgcg acgagaacgg tgctttcgcc actccaccag cgaccacgaa cgaacgagcg     1740
tggaacgacat cacgaagaat acgcatatt catcaatgat ttcggtgtgg atcggactca     1800
ttcggactgt ctcaagaagc

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(2) INFORMATION FOR SEQ ID NO:707

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 596 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:707

aggatcccca	gcctcaagcc	caagaaagga	cgcttcctga	gcaaagaaaag	cgagccgaag	60
agtgggagag	cggtaaggag	cggttccgag	accttgagct	tggtcgcaca	gtgctgctcg	120
tcggatagag	gatgcttttg	tcggaatgag	tatgcaagtt	gggaaaataa	gaagaaaatc	180
gagcagctgt	tgcaggctctc	tccctttggg	aaacctttga	gagcaagctg	aaagtcaagg	240
cagacagata	aatatgtcca	aactgaaaaa	ggaaatnctc	gaagccaaag	aacaccctat	300
cacgacttca	agtcgtggca	gaagttcgag	cgcgaaactgc	gcctgtcaag	aatcaggata	360
ttatcacttg	gatgatgtgc	agggatctca	tgaagagaac	aaggtggagg	gattggatac	420
cggtactctc	tacctgaaag	aattcggacc	gacgtccaag	agcaggggag	cctcaatgtg	480
ctgaaccacg	gaaagccgat	gcgctttgcc	cgtggctcgtg	tacagaagcc	gacaggccga	540
ggccatgtac	acaaggagga	ggcttcctct	ggcgacggtc	tatatcgaga	aaggga	596

(2) INFORMATION FOR SEQ ID NO:708

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 712 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...712
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:708

gccgttctac	ggcaaggaag	cgtaagtatg	tcaccagccg	gcatattcag	accgtctgat	60
gcgagaactg	gacaagaatc	tggctctttc	gtgtggagcc	accgataacg	ccgacagctg	120
gctcgtattc	gggcgtggcg	tactgcactt	tccgttctta	tcgagaccat	gcgccgcgag	180
gggtacgaac	ttcaaggggg	cagccccaag	tgatcatcaa	agagatagac	ggcgagcggt	240
gcgaacgata	gagcttcttt	cgatcaatct	gccggaagag	tcctccagtc	gtatatagac	300
atagtgaccc	gtcgcaaggg	agagatgggtg	atgatggaaa	acagaacgac	cgggtgttta	360
tggagttcca	tatcccttca	cgagggatca	tcgactcaac	aatgccgtac	tgacagcatc	420
ggcaggagag	gccgtaaatc	ccaccgcttc	ttggaattcc	aaccgtggaa	aggggagata	480
gagcggcgca	caacgggtcg	atcattgcgc	tcgaaagcgg	aacggcctat	gcctatgcct	540
gaataatctc	caaaagccgt	ggacgcttct	tcattcttta	cgcaggagag	gtctatgccg	600
gtcaggctcg	aaggcgagca	cacgaaagga	agggcgactt	ctgcgttcaa	cgtctgcaag	660
agcaaaaaagc	ttaccaatat	gcgtgcttcg	gtagccgatg	ataagtgtca	ct	712

(2) INFORMATION FOR SEQ ID NO:709

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:709

cggagcatcg	tgggttagtcg	tgttggtggc	gtatgccagg	gcaggtgggc	tgtagtactt	60
ccggccaaca	ttcccatcag	cgtaagataa	ttgatcttta	tcctttgcaa	gcgataaatc	120
cgatgataag	gagaggcagg	agggtgatat	aaaaccgtat	ccgatccatg	taaaaccacc	180
tttgtttact	atcgtacgac	gaacccctct	ccggcccca	atcctacgca	agccaagaat	240
atgggtatgcc	gatttctctc	aacatcaa	at	tggcactggg	agtcgtataa	300
ataccgataa	ccgaaccgac	tcaatagaat	agccaccacc	aatggccacc	agcaagtccc	360
agcttgacgg	gctgaggaat	accgggcaaa	acatcggaag	cgaacccaaa	aggataccga	420
gaccgatgcc	gatgaatatg	gcattagggt	cggttcgttc	agtcgtttga	caagaattac	480
cgatcagttc	tccactttgg	gcattactaa	ctcactgccc	actacagtca	gacgatcgcc	540
acctgtagcg	gaaggaagcc	aatgctacca	tctcaacttc	ggcacggtca	cacgtgtcac	600
attcatgcc	at	gcattttgc	gt			622

(2) INFORMATION FOR SEQ ID NO:710

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:710

ggaaaattct	tccgattctc	gaccctgaaa	atagatTTTT	tggaaagctt	tgaataatat	60
gtctcaacct	atcaatgact	tataaagggt	cggttgggat	acccttagtt	agaaggggtg	120
agacaaactc	catttttgag	ccaaatcgat	acaaatggtg	ggaataccct	tagttagaag	180
ggtggagaca	actacacatc	tttagtaatt	tctttagtaa	tgttggaat	acccttagtt	240
agaaggtgga	gacaacggtg	tcccaagcct	gaacggtagc	gttgctggtg	ggaaaccctt	300
agttagaagg	gtggagacaa	caaacgcac	gttataagtt	ttttgattgc	gttggaata	360
cccttagtta	gaagggtgga	gacaacggtg	tccaagcctg	aacggtagcg	ttgtcgttgg	420
gaataccctt	agttagaagg	gggagacaac	aaacgcac	gttataagttg	ctgtgattgc	480
gttggaata	ccttagttag	aagggtggag	acaacacctt	tgcttgaca	tcctcaggac	540
ag						542

(2) INFORMATION FOR SEQ ID NO:711

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:711

```

cgctcttcta taaaatgcgt gatgtccatt cttttcagat tctgtttcttc ccgatacggg      60
acaaacgctc cacctcgcga tccagacgat gaccgatcgc tccagcagga tatgcgtatc      120
ggacatattg cgcggatgct gtccgacgag gtaatttcgt cgaagatgcc atccacattg      180
gtcagattga aattgcgcaa atggacaagc acttggcacg ccagttgctg cggcgtatca      240
tcggaggacg aaagtcagac cgctctttcc ggtagtgtg tagcgcaagt gtccatgtag      300
cactctccgg catacggtat ctgagaggca gcaaattcgg catgcccagc tcttctcgag      360
aataagcctg aaaatccttg tgtaccgagt cgatatctcc gagatggcat ttgccccaaag      420
tgctctttct ctgaagaggt atcttctccg ggacggctgt tgagcttcac cacagcgagc      480
ccggcacctt ctgacctcga ttgtgctgct tctccatcag gaggtatagc ttgntcangc      540
atacatccat gtgccatact tatcg

```

(2) INFORMATION FOR SEQ ID NO:712

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:712

```

ggatctttca accccatctg tatagtcgta cggcagactt ttatcaggat ttgccagaag      60
cctttccatg ttggatgagg tggttttatt ggacattttc cggcacgaga actccctttg      120
ccagggtgtg ccagtcgtct gatattgatt tgatcgagaa tcccaataaa acgctggtga      180
gcaaaaaacga tctgctgatt atttacacgg caacgagata cccgatgtcg tattgatact      240
cggagcggcg atatcgatcg gttagtgtatt cctgncaaac aatatctcca aacttatgct      300
aaagaagggt ctttatatac tggggttctt tcttgtagtg gccatcttgt tgcagccata      360
gttttctttt cggactattc cgatagcact cgtgctcagg tttggaagtt cgagtcgagg      420
gtaagacgaa acatgcattc agcaaaagac cgatgtggag cgagacttga agcgtctggg      480
tttcaccccc atggcaagct gctcgactct atcgatcttc acagaatgga aagaaacctc      540
gtgctaattc ccttttccgc ggagcggaat tgtatgcctc tccatccgcc aactgtatct      600
gacagtggaa caaaaagatc cgctctttat ggtagtagat ccgatacctc tttctatgtt      660
tctaccgaca ggagcgtgat cgttccaact tgcagtatgc tgcccccgta ctgatggcct      720
caggggatat atctcgtcct tagctaccgg ccctctcttc gacctcattg catttatcaa      780
gcgagatcca ttctggncaa actttttcgc tcaaggttat gtgcccggat aatgncagaa      840
catattaagt tccccgtctg ggcnaaactg ga

```

(2) INFORMATION FOR SEQ ID NO:713

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:713

agatcatacc	ggatataaat	gccggttgat	gtggcctaaa	gttcgctatg	cttcggttta	60
catggtgaaa	attcttacct	gaaagtgccg	actaaagggg	tgtatatcaa	ggataccata	120
tcgtaggtgc	tgtattcggg	ataggaaccc	gctcaatgac	agacgttcgt	tcgtaaattgt	180
ctctcttgaa	tatgacgatt	gatcccgaag	gagggatga	tcaaagaaaa	tgctctgaaa	240
ttgacttcgg	cctcacgttc	aacgagtcac	ggtttaaaaa	gctgaaactg	aactacagaa	300
ggaaaaatgt	tgaacattaa	aagaataaag	aagaaaaatga	atgaagaaat	ttgtttgcaa	360
cggcagcact	gctttttacc	gcaagcacag	ccttgctcag	accggagtcc	aaacaaatac	420
cccattcggg	agtggagaag	aagcatccgt	tgccgtcaaa	acataagtct	ctttacctct	480
tatgcgaaaa	gggtaattac	aaggatgcct	atgatttttg	ggagaaagcc	tatgaggagg	540
cccc						544

(2) INFORMATION FOR SEQ ID NO:714

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1714 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1714

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:714

gccgtcagtg	atattgattt	ttccatccct	tcagggcaaa	cctatgcgcg	gtcggaaactt	60
ccggaggggg	taagaccact	atagcccgac	tcataacctgc	ttttgggacg	ctacccaagg	120
ccatatacgt	atcgggtggag	tggaatgtagg	gatattggcaa	aagaagagct	gatggacagg	180
atctctttcg	tctttcgaat	accaaacttt	tcagaaccac	cattcgtgag	aatattacct	240
atggcgcccg	gatgcataccg	aggatgcttt	ggctcgtgcc	atcgaccttt	ctcaagccgt	300
gaaattatag	agcgtttgcc	cgatggactg	caaacgaaga	tagagccgat	ggcacgtatc	360
tctccggagg	ggagcagcag	cgcatagctt	tgctcgtgcc	atactcaagg	atgctcctat	420
tgtggtgctc	gatgaagcca	cgcctttgct	gatcccgaaa	acgagaaatt	gatacagcag	480
gctttgcacg	actgacgaaa	ggaaagacgg	tgctgatgat	tgctcatcga	ctgacgagct	540
acagcatgtg	gatcgtatcc	ttgtgataga	gaagggacga	atcgagaca	gggtaccac	600
gaagaactcc	tgacacaagg	tggtctttac	aaatccagtg	ggaggaatac	cagcgatccg	660
tttcttgga	attatgaaag	aagaaaacac	acaattacct	ctaatacgaa	cgaacaaac	720
ctatgatagc	atattccaac	accgattcgc	tctctctcgt	aaggggtgcg	aggatcttgc	780
caaagcattg	catggactac	ggttttgaat	gtcggattta	tgttgccctg	catttcactt	840
ttcttttcct	cgaagactat	ctgcaaggat	ccgccacaca	tgtatttggt	attatatagc	900
catgggagcg	gcttttatgg	cgggtgctct	cttatagctc	tcttccaata	cacaagcctg	960
tacaccaaga	tatatacaga	agtgccaaac	gccgcacgcg	cttggtcgaa	aaactaccga	1020
aaactccatg	gctttcttcg	gagagaagaa	tctgtccgat	ctgacttcca	cgatgatgag	1080
gatagtacgg	tgatggagac	tgtcttctct	cacagtatac	cccagctttt	gcatcgttgg	1140

tcagtctctt	tttgatcggt	atagggctct	tctgcttaat	tggcagcttt	cgttggcact	1200
cttttgggtt	gtgcctgtag	cagcctagca	attgtctttt	ccaaaaagat	gttgaacaaa	1260
tcattccact	cgaataccat	gtcaaacgag	aggtcaccga	gcatatacag	gaaggaatcg	1320
aaggatacag	gagataaaat	catataatgg	cgaagaagaa	tttgccgagc	gctcgatgcc	1380
aaactccatg	cctatgagaa	gagccttatt	cgatgtgaac	tgttgtcggt	gccgtcctta	1440
atgcttcaca	tataatcctc	aaactgggac	tgctctgtga	atcataatgg	gagcttatct	1500
cttgtcagaa	ggaacaatta	tctattcact	tatttagtct	ttctgcttat	cggatcgagc	1560
atatataacc	cataagtga	gtattcagca	atttgctact	cttgtagtac	ctcgatgacg	1620
tatcgatcgg	gtgagagaga	tggatgctat	gccgatacag	gaaggtaaac	ggactattct	1680
gtccggaact	tcgatattat	attccaaaac	gtaa			1714

(2) INFORMATION FOR SEQ ID NO:715

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:715

atctcatcaa	tcaaaacata	gtatttcctg	cccatatctt	ttgtttgctc	atgatatagt	60
cgtataggag	attgggatta	cgataactga	tatccgattt	ctatcaagag	ctacctccac	120
gaaatcttct	ttttgagctc	cttcctcatc	aatcgattct	taaagagagt	gaagagtagg	180
aatgactttc	ctgaactctt	aatcccgtaa	caatcttcac	cttaccattc	catcgctttg	240
cgaatactgt	gcaatgtatt	catttctgtc	tattatcata	aataaggctc	cttgatgatt	300
ctctgaaatt	ttagtcgtgt	attacaactg	ttttgtcagt	gcaagatatt	tttttgcttc	360
gaactaacia	aaaaaataga	ggaacaaatc	tatacgatgc	ttttgatgta	gccgaggatt	420
ttgcgaatac	atttcaaaac	actttgaggt	ggggaagaaa	cggaaaatta	ccgtctttca	480
aatcgggaa	cggcggttatt	ttccggtaga	ag			512

(2) INFORMATION FOR SEQ ID NO:716

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 585 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:716

```

ctgaagaatt gtaccatgtc tgccacnttt ccgttggatg ttcgctcgga acaaaagcca      60
gattcacttt cttcttcggc ccgctcaa ataatatgta cgcgcttacg acaaagggat      120
gaaagccgag gacaacctcg atctcgacac ttggtctact tgggtgccag tatcttccga      180
tggtatcaatc gttatagatc attccggcct ccacattcct gcagcagtat tttagcaact      240
gggggtgatc attcttttgc tcacgctggg gatcaaactc ctcattcttc ctctgcttac      300
aaggggtatc tctcctctgc caaaatgcga ttgctacggc cgcggtacaa gagatcaatg      360
ccaagtaccc gggcanggat caggaatcca tgtgaagcgg cagtctgcta ccatgaatct      420
ctatcgtgcg gccggtgcag gccgatgagt ggggtgcttg ctatgctctt ngcagttccc      480
tttctcata ccatgtacat gtatttcctt acgactatcg acattcgtag cagagtttct      540
ctgggcggaa gacctctcct ctatgatgct ggtttcagct ggacg                      585

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(2) INFORMATION FOR SEQ ID NO:717

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:717

```

gtgaagagcc gagcgaagaa gatgaagcag ttcagactga agaaaatctt tatgccaaag      60
tgctaaaatg attttataag agagagagga tattcatctg gcagtacttt tgcactaatg      120
gggaattacc aacagatgta attgcatttg tggtgacaaa aaaagaaaac gacatgagga      180
agttattttt aatagctgct tagaaatggt tatgttcggc tgtctcctat tctcaaaagt      240
aactcaacga taataatatg agtttgggac aaatacacga actgcaagtg catatttttc      300
gcaaattcca aaggatttgc tggaaaatat ggataaaatg ggctggacaa ttcgtcaata      360
ctcaatgaat atgaggggag atattttta ttttttcaa tatagaccct caggttttta      420
atcttgtcgg gaaaaaagtc gcttttgggg aag                      453

```

(2) INFORMATION FOR SEQ ID NO:718

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:718

taaaatgatg	atgacagact	gtttttcgcc	ggctgcagtg	gctccaaagc	ttaccgtcac	60
tcactttctg	tggaatgatg	acttctcaat	cggtttcaat	tcgatggggg	taggttggat	120
ctaccctcta	ttcgaagggt	acacacactt	cttgtcgaag	taaaacatct	tgccctccagt	180
tggatctacc	ctctatcgaa	gggtacacac	aaccatagac	gtaaggcata	cccgtttcga	240
tctgtggatc	taccctctat	tcgaagggtg	cacacaacat	aagactatat	cttaataacc	300
aaattctgtt	ggatctaccc	tctattcgaa	gggtacacac	aaccaagggt	cgggttcttg	360
accttacctc	cagttggatc	taccctctat	tcaagggtac	acacaactat	aaaggtttgt	420
tcaaggaatg	tgctaccgtt	gatctaccct	ctattcgaag	ggtacacaca	acgatgcgga	480
caacgtccct	tactccgtct	tggttgatct	accctctatt	cgaagggtac	acacaacagc	540
gattagctcg	tccgccgaca	cgtcttggtg	gatctaccct	ctattcgagg	gtacacacaa	600
catgattctt	gattggtggc	ttgggcgttg	gaaatgtcag	tagtgtgggg	attcttctct	660
gttggggcct	tttcgctaaa	tttcgagcgg	acgaggtgc			699

(2) INFORMATION FOR SEQ ID NO:719

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:719

cgtcgaggct	gtttcgggtg	agtatcggac	atgtcaagag	acgtatttga	ggttaggagt	60
atgtgcttga	gccggcggaag	gagcagtagc	ggcagcaagc	gaagatgacg	aaagcgagga	120
tattgggtcca	agcatatttc	agggaaatcc	atcaagggca	cttgtcacat	aagagagata	180
gtagtgccctc	aacggaatag	cgcgctggcg	gactgcgatga	cagtcggcat	accgagagcg	240
ggaaagaggc	tccgcatatg	gagaaagaga	taatgcccc	tagggaagca	aagcaagtcc	300
caatctcatc	gtcgggaggg	tgacgaacat	cagtagccca	aaacctgaca	agcgaggatg	360
aagagataca	tgactatcag	catcggcaag	aaccgccatt	gatcgggtag	gagaggaagc	420
catacagata	tacgtctata	aggtgccgat	gagcatgaat	gccacggttt	ggggtagcag	480
cttgcccaaa	ggcgatgga	catactgccg	ccggccgtct	ccatccattc	tcgagctgtg	540
atctcttgat	ctccatggct	atgctacaca	ctgtgaccat	gaagatgaca	gacccagtac	600
gccgggtatc	atgatattgc	tcaggtagat	ggagtagtga	gccacggatt	gcctatgggg	660
tgcggtgctga	taacgatcgg	ctgtagcagt	ccatggcctg	gctttcggtg	gctcctcggg	720
cataaagttg	cgaacagcgg	ctgcaccggc	taccagttcg	ctgatcatct	tggtgtccct	780
gaagggagcg	agccaccac	catataggca	tagttgggat	agaaggagag	cttggcttgc	840
ttctgtgcgt	aggcatcccg	tgtcattccc	tcgggtatat	agagtaaccg	tatatctcgc	900
ctcgctgact	gccagccgag	ccttacgcac	gtttcgaact	gttgaccatt	tggttgctt	960
ccat						964

(2) INFORMATION FOR SEQ ID NO:720

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5870 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5870

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:720

gtggaggatt	tgttgtctta	tataggaagt	atcagctatc	cgaacagcaa	gcgaagcatc	60
tggtcgggat	ggcgcagatg	ctttgctctg	attttgga	gtggtaccgg	acgaggtgtc	120
ggaactaacc	aaactgccc	gcgtaggcgt	aagacagcca	acgtgatagc	ctccgctcgtc	180
tacggcaaac	cggccaggcc	gtagatacgc	acgtattcag	agtatcagaa	aggataggcc	240
tgaccccggt	tcgaagtctc	cgttagagac	ggagcgagag	ctggttcgct	atatccggat	300
gtgctgatac	cgaaggtca	tacttggtg	atcctgcatg	gacgtacgtt	tgtctggctc	360
gcaagcccaa	atgtgcagac	tgtggcatag	cacattctgc	cgctactact	cgaaagtttt	420
taagaagaac	agtacagccc	tccgaaaaaa	ggggaatgat	aaggcctggt	gtgcaaataa	480
tatccgcaca	atgctccata	ccttaattcc	ggaggcaata	tgaatcgaga	aagctttttc	540
tcttctgttg	tctcttattt	gctctcccgc	tccatctgca	aagcatcgct	ccatgcaaca	600
acatggcaga	tacgacttgt	atatccgatt	cggccaaatg	tttcctcctg	ccatcggtgt	660
ttacccatgta	aaaccgatga	aaaacaattg	cggcattccc	tgcctcttgt	agctgcttct	720
ctccttactt	tcaactggat	gacaatatcc	gagagcttct	ctttaccggg	gccgggagct	780
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cagtcggact	acattctatc	ctttccgctg	acgatcgagt	ggaaatgggt	gtacagagtt	1860
caaagcggtg	agcacatcgg	gcacctcgcg	caagcgaacg	atcctctttc	cccggactga	1920
cgaatctcgc	accgacgtgt	gtgcgctgcg	atatattcca	caacatgcca	aagactctcg	1980
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aaagtacggg	ggataggtgt	agcagacatg	gtcagcgttc	gacattgacc	tgtagtttgc	3060
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cacgaacagc	cacttccgtc	tgccgaaacc	gacatcgccg	cagataagcc	gatccatcgg	3420
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atccagcaaa	ctgcctcgta	cggcaaattg	ccccggctca	taaacgaatc	ggttcgttcg	4620
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tgtgtgcat	ctctttctcc	agtaatcgcc	ggcgaccacg	cgttcggcca	cggcttcggg	4740
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aaaaagtgc	ctaccctctc	ctccgagttg	ctccaaatcg	agaagagata	gccggcttct	4920
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tcttttggtc	ttcttgaaaa	cgtacgtgca	ccgaaaaagt	tgatgctcgg	aatcgggtcaa	5280
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cagtttttgt	agtttaatac	gtgtacattt	gtgtcgataa	aaggcgaaca	cccttttcga	5400
cgcatcaaac	atgctgataa	tgaataaaat	aaaaaagtga	agcaatataa	tgaacaagca	5460
aaaaaacaat	cgcgaacgaa	cgctcagcc	gaacaggata	ccgaaagaga	cgaacaactg	5520
acaaacagtc	acgaaaagat	atagatagtg	cccccgacg	cgaagagaa	gacaagggtg	5580
cagaccggtg	gagcagctca	cggtcagtt	ggctgctctt	aacgacaccc	actgctttga	5640
tggcagaata	tgacaactac	cgcaagcgga	cactcaagga	aaaggcgaac	ttatccgcaa	5700
tggaggagaa	aagggtgctc	tgggatctgc	tgccgtgatc	gacgacttcg	agcgcgcctt	5760
cagcaatctg	ggcgacatgt	cgagcctgct	gccatcaaga	aggagtggaa	ctgatctacn	5820
gcaagttcat	gactatctgc	agagcatggt	gtcaaaaaga	tagaaccgca		5870

(2) INFORMATION FOR SEQ ID NO:721

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:721

tggcgagccg atcncggnag agaataatcgg taagcgagtt gctgccgatt cgataccggc

```

cttcaccgca ggaatgcttc tgtactgaac acgctgggtg tgtactcaaa ggactgttcg      120
tcctcgtagg aataggtcct atccttggtg cgttttcggt cttttcggcc ttatattaga      180
gctgttttga gacggtagct ggcacatgct cttttgactt cggactggat ttctattcct      240
tcttgatgat actctgtgcc acgatctccg tatttattat agtagccgct ccggtatggc      300
catcgttttc agacatcaag ggcaggggag aaacgggatt attctgcagg tctcaaatgg      360
ctgggcttga ccatttggtc tgctgccgct gtctattggc cgtagtcttc atattgataa      420
cccgtgaact gggtttgaat tcttctcca tcgccattca gtatgatgtc agaaatgcct      480
aaaaaacatt aggttccttt taggacaatc catagtaaag gtttttgctt ttttgttcaa      540
tcttcgtttt agaatcttgc cttttgaaaa agaataacat cagctattat agtatgagcg      600
ataattgtca tttgactgag aaatcatttc gaagtgtgtc ctcccgaagg attccgtcct      660
gactttatct ttccgaattt gtctccaaac tgggtattgga tactcctttc tattgtcctt      720
ttcgccggat ggggttgggt aagtataaga gggccggcat ggctcccagc acctatttta      780
cgacgtaatg gcacgattcc ccgaaggcgt tcagagagca tgctccggtg ggtgaatcca      840
aactacaatg tatatgataa tta                                     863

```

(2) INFORMATION FOR SEQ ID NO:722

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 630 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:722

```

ttattcaaaa agttcctcat ttccggacag atgctgttct tgacttgcta atagtgttct      60
tctcactccc ttattgacag atcattcgcg tgatctccct cgaataggga ggtaaccaag      120
cagtactacg taccggagga aagacttggg gcgatgaact gaccgatctg ctttttagcc      180
ggccggatag tgggcacagc tactcgaccg gttgttccta ctcttgaaa aaattgccga      240
aagcagctct ttcagccagc cgattcggag tatgaccaat cggaggagac caatatatgg      300
agttggagca gatctatcac tatcgcaata tgctgaacag gctagaggac tggtcgaatc      360
ctatgccatg gatatgtcag ttcgttctgc agtcttctgt tgcaaggatt ggtatccgga      420
gtgagcatcc cattcgaggg aaacctctgg tcggcctgca aatcatggga atagatcaaa      480
cgcgatcttt gatttcaaac atctgatcat tctctctgtc aacgagggta aactcccatg      540
cgtgtctatg aaacgacaat gataccctac acattgcgca gaggggatga cttcgggtcaa      600
tgaggtaaac gaagccactc aatctatgat                                     630

```

(2) INFORMATION FOR SEQ ID NO:723

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 891 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...891

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:723

```

aatgaaaact gcagaagttc atcaggatca gacgatattt caattgctta tcatgagtgt      60
gtgattgtag ttattacgga agactgaaaa gaaaaagcct tcgacggcac cgaatcccga      120
atcgaaaggc ttatcccaa ttattgtgca tgtatcagtt gtcggtataa gtcatactgt      180
aaacgccgat acgcgcgtct tatttttttt tccgagctgt agtttgacgc cggacgggaa      240
catgaattat tcagctggga ggtgtacagc gaattggaag ctcccgaac ctgagcttca      300
caggcagcag tacgagaaca aggtccttgg tgatataagg ctccctcgg gagtcttctc      360
cgtattgttc ttgatatgct ccacgacgag gcactgatat tgctaaaccg atactcccg      420
ttcttaaatgt tgtatatggt cataggaatg ccgtgcgagg ctgcatcagc tcggtctggt      480
cttgctcgaa aagtttctca ccgaatcctg cggcaagagc aacaagtagg agggcggacc      540
agcatcaagc cctcagatgg cttcgaagca ctgatattga actgtgctca ccgatttgcc      600
aagccaaaga ggaagacaga ttgctcgtga aagcatcgta aactgctctt tactgattgt      660
cagttgcgtc atcacccctg ccggaccttc acacaagtga gagaatcatt ctcttgcaac      720
aggtgggata tttggagttc ttgatatgat tgacctgata ggattcgctc gtgtttacga      780
atgttctgta gctgttggtg tggaatcggc cgtaaccttg tagctatnga agaggccatc      840
tgcgtattgt cacgctgagc acaactcccg taccgctcgt cgagtcacat a              891

```

(2) INFORMATION FOR SEQ ID NO:724

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 968 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:724

```

cgatccggca gccgcatcgg tgctggccat agccgaagct ctgaccaatt cgtcttttgc      60
ccgcttcgta atggtatcga ggggtgtgagc ctgtcggcaa ctggatgtgg ccctgccgta      120
acgaaggcga agatgcccg      ctgtacctgc cgtggaagcc tgttcggact ttgccgtcga      180
tctgggcatc aacatcctac cggcaaggac tctctgtcca tgacacagaa atatgaggac      240
aaaaagtgtc gagtcccggt acggtgatta tcagtgcgcg agccgaagtg acagcattcg      300
tcgcatcgtc agccccgtcc tcagccatat agccgctacc gcttctacta tatcgatttc      360
agcttctgcc cgttctcatt gggaggatcg gctttgccca gagcttgggt actatcgggtg      420
atgaagtccc cactgtacgt gtccggaata cttccgcgat gcgttcaata ccgtacagga      480
actcattgac aggtgtcgtt tctggccgga cagacatat ccgcaggcgg tctgattacg      540
ctcttctgga aatgtgcttt gccaatgtag taggcgtct ggaggtggat tggataacct      600
cgtggaagac gacctgatca aagtcctctt tgccgaaacc cgggtatcct cattcaggta      660
aaggaccgca aagccgttga taagatctga ccgatgccgg catcggtttc ctcccgatag      720
ccaagccgac ccaaggcgac acctcttgat acataaagac ggagccgaat acctgttcgg      780
tatcaccaca tgcgcgacgt ttggtatgag tcgtcctacc tgctggactg cttcagagtg      840
gcaatacctt ggccggcaac cgcttcgaga actataagga acaccggtcg tatatcactt      900
cccaagcaat ttacgggtga tctgaagcga tggattggat cccgatcgaa agacggcatt      960
cggcattc

```

(2) INFORMATION FOR SEQ ID NO:725

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 725 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...725

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:725

```

ccattgtgta atctccccct tccatcacat gcttttgccc atccacgac gcatcttgtg      60
atcgagattg cagtcaaggg tgtccctcat actaaagagg catcgaagaa aggtgctgtt      120
ctgaaaagca aacgagatct gaatccttat cctgtttttc aaacgatagt gaagcatcgc      180
cggcacgtgg catcaggccc cccacttata gtagattgta tagctgaggc attctccggg      240
cctgcgaaat cgttgagatg gggttgctga gcttgcaatg atatagaggt gatgttatga      300
tgtatagagt cgtgaggatg atgactatgc agttgaatgg attcgtttct tgcttatatt      360
ntgttttgct ttcatttctc cttttctttt ctccaatgat tcaaataatag gcaataagcg      420
gtagtagtaa ataaaaggag gagcctgtgc cagacctcct cctcaaaaac gaatagactc      480
tttagtagtt ttgggtgtaa atactcccaa agttattttt tattcgaatt atagatttcc      540
tgagtttttc gattagcttt tcaccacgaa gatctcgctc tataataggc cgtcaggacc      600
caacagtatg acttgcgga taccttgnat gccatactat ccgtagccac attcttagca      660
tcgatatctg aggccatacc acgttgagct tctttgcttc agtgatcttc atttatccaa      720
actac

```

(2) INFORMATION FOR SEQ ID NO:726

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 821 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...821

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:726

```

cacgctatgg ccatagactc gcgagaagac tttgggtctga cggntccgca atgcaacgat      60
ccgtatgatc agcgtggcat agccgatcag cagcagcagg agcttaagaa accctgctct      120
tcgcccacgg tacagaagat aaagtcctat cctgctcggg cacatatctc agtttgggtct      180
gtgtcccttt caggaaccct tgcccataaa tccgcccagag ccgatagcta tcttggaactg      240
gtctaattgt atcctcctcc ccgcaaactg tctcttatcc ccaaggcaac cctgtacgca      300
tctgctgggtg gggctgcatc actttgttga atacatagtc cacgaataga agtagccac      360
cgaacacaag gcgaaaacgg ctatcagcgc atcgacagta cataccgctt gatggccatt      420
gacaaaagccc atacgatcaa tctgccaaga gaccgtatgc cacgaggaca aaatccaccg      480
acacgaagta gacagcacta tggctacggc ataggtgaca gcagtaagcc ctgccgccag      540

```

acatagaagc	gtcctcgctc	cttggtatag	atccgcacga	ggaagaatct	atcacaaaag	600
ccatcgagac	cacagacat	tcggcgcat	ccgtatgcc	caccacacat	cgccctgcaa	660
cttcagagcc	gtgacgaaa	agaggaggca	cagaaggcaa	tgccgatgaa	tacgccggac	720
attccctcac	gataggggca	aggaaaaaag	ctatatagac	gagggcagac	cccgtttcgt	780
ctgacagat	aagcagtacg	ggatgaggat	aatggcaaaa	g		821

(2) INFORMATION FOR SEQ ID NO:727

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:727

agttcagcac	cgatttcgctc	cagccggaca	ccgcttttga	aagcgtagct	gctggagtat	60
ctcacgagc	aacttcaaat	ccggacgttc	tatcttgaac	aggtagcacc	ggccatacga	120
gtgaccaacc	ggctctccat	cccgttaggt	ctacaggagg	tttgtccgac	gtcaagacta	180
tctgtttgcc	aagcattaga	ggtgattgaa	cacttggaag	aaagctaatt	gcgttttctt	240
cttgcgatca	accattggat	gtcatcgatg	atcagtacat	ccacttgctg	gtagatgcga	300
tgaagtcatt	gatcgctccc	atacgggctg	ccgtagttaa	ctgatctcga	acaaatgact	360
cgatacgtat	agtactttca	accgggggtg	cactctctga	cacgaaggcc	caaggcatgg	420
cacaagtgcg	tcttgccac	acggaagctc	catatataaa	gaatggattc	atcggcgat	480
tgcccgggct	gcggcgatgg	cttcagccac	tgagcgagct	acatagttgc	attcgctctg	540
tagaagttgc	ggaaattgag	cctgctattg	agctgcgtgt	cgaaatccgt	gcttcgctat	600
gggtggctgc	attgggcatg	tgctgtgtga	gcaaattaca	tcgaactgtt	cggtgcctg	660
tccaccgtcg	gcacaaccgg	ccaatgcacc	gtgccgggat	atttgggcga	actgttgtct	720
acaagggcat	tatacgtaat	gatgcgttgg	gacctataac	acgccccaac	accgtacgca	780
gctgtctacg	aaattgccct	ccaaaaactc	acagaagaac	tgactcggca	ctttaaggta	840
agcgtatcgc	cctcgataga	taccgggatg	ataggcaaga	acatgtacgg	tatgctcgct	900
catccacaat	atcctgaagg	atgcgaagac	agcgtcccat	atttcattta	cattggtcga	960
gtggtagtgc	atctaaaaaa	tatcgttttg	agagcagtcg	ttcattgctc	ttttggggat	1020
agcaaaggtc	aaacaaaaga	gtaaaaaaac	aatcgacaaa	aagtgtagta	taattcagtg	1080
aatcgatatc	atattgtttt	cagatggtta	taaccttgag	atataaaagc	gaaggaaaca	1140
acgctattcc	actgcatttc	agacacttat	acgaaaccga	ccaaggcgcg	accgagttat	1200
caacacccaa	gacagagcct	cgattagttg	tgtacaaaga	ggttgcgagg	aaggagagaa	1260
aaatttttca	acagatcttt	atttacaatg	aatcgaaata	aggaaaatct	ncggtgctcc	1320
ctaaatcagg	atgtatccaa	tc				1342

(2) INFORMATION FOR SEQ ID NO:728

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 852 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...852

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:728

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atcttcaatc cgagaaaagt gggctcagtc aatcctgaag caatcttcag ccatcacgat      60
agaccgtgta ggtataagaa cgaacagcct gctccggcat ctcctcagta gcgactatct      120
cctgcagagc ttctacctct gcctctatgc gtctgtctcc tcaaaccggg gcaacgaaag      180
tcaatgattc caacactctt cggttcggaat aatctcttga gctgctactt ccaatggcat      240
aataacatgg gtaaaaccag ccaaagcagt gagcagactc ttttgaagta gttcggtttca      300
tagttatctc cttttttaat tagtatctca tcttggtgct tctttcgccct cttaaataag      360
gtgatacaca aagataaaaa tatatttcgc cgcaagctat tcttcaacct aaaaagtttg      420
tatgacgcag gaatcggaat ctttttcttc gacaaaattg aagtcaatca ggagcaagga      480
ggttctcttt aggtcaaaag actgatgcta cttgctttta taatgtttca ttgcttccgc      540
atatattggc gaatggcagc tatccgattg gcacgcctcg gatgcgtatc agaaactcta      600
cccgcccggt accttgggca gccatctttt gccaaaagta attgccgnat tcgggttata      660
accggccatc gccatgaaga caagtctatt ttgtcggcct catactcctg tttccgattg      720
tagggtagcc gtaatagcac ttgtgatcca atgccatagg cctgcccgat gaccgtttgc      780
agtgtgctga cttggtggag actgctgcgc ccagtatatt accaccatt  tgggtagata      840
ttcctgactg at

```

(2) INFORMATION FOR SEQ ID NO:729

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 678 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:729

```

gcgttatctc tatcatagt gatattcgga gcattccgct gccggcacct tccctgctac      60
cgtttgaccg gacatccgaa gttcagatcg atcaagatcg gaccggccga ttcgcatagt      120
cgggcaagcc tctaccatcg aagccaaatc cgtccgatat atctgtacag ccatcgggag      180
ttccgattca tctatgccat ttttcggaat gtgccgggcta cttgacgaat cagggcatcg      240
gcactagaaa ttcggaataa accagatcgg caccgaactg cttgcacatg atccgaaggc      300
tacatccgtc acatcctcca tcggagcgag tagcaaaagg tctccccgag gtctatggca      360
cctattttca tgctccttgg gctatggcct gtccctgtcg agagccgctt gaatatcggc      420
acatacgttt tcctctccca aagctctacg atgcctgcag tggcaagttc ttcgtggagc      480
tccttgcgca accggagagg acgatgctga ccccttcttt ccggctcatt ttgatcaggt      540
ttccagattg tgcatccctg tcgaatccat aaacggcaca tgccgcatct gataatccga      600
acatcgggat ggtcgcccaa tgtgttcatt atctcttgaa tctgttcgag ataccaaaga      660
agaaaggccc ttcgattt

```

(2) INFORMATION FOR SEQ ID NO:730

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 709 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...709

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:730

gcgccccaaat	gccaaagatc	ggaggggaaa	ctttcggcct	gaacgtaatg	gtgaagagga	60
cagggatcag	accgaaaaaa	atgaagactg	cgatttcgcc	aatccatgat	aggccaaagg	120
ataaggaccg	gcactatacg	acaaagccca	atggctacaa	cgactcccac	gaccagcaac	180
caccagttgc	taatggacaa	agcagaaaaa	cgctaaagcc	gagcagaaaa	agaaatgaga	240
aaagactgcg	agaacctgtc	gctccgacaa	ccaacctttg	gagatcccac	gttcaagcct	300
acacgctgat	cggtatccgc	acccttctta	tagtcgaacc	aatgttggct	atattgctga	360
ccgtttgggc	agacaccgct	acgatcaaag	ccaagcggcc	tgtggccagc	gaaaattgcc	420
gtcagctata	gcataagcaa	tgctacaacg	acaggactga	cagatgcccg	cagggtatga	480
ggccgtagca	agcgagccaa	gctttgagac	gcgggggtga	tccgttattg	ctcatctgaa	540
aaagacttcc	cggtagcgga	cgcataattat	aggaagaagc	catcacggtc	catatgctcc	600
ggccgaacga	atagccagat	aatcgccgcg	tttgagtcgg	gcatgagcaa	ttcacgctcg	660
aatacatcgc	tggtatcgag	attgggcgac	aacatcgatt	tctctgcag		709

(2) INFORMATION FOR SEQ ID NO:731

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 530 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:731

ggcctcccga	ggcaagagcg	ccaatacggc	cgtgatgtcc	ttgtcattgc	catgccgaag	60
acgatacgca	gctgtcggta	agtctgtcgt	ctcagttgtc	ggtgatcaga	cggaatccgt	120
cttcgtttgtg	tccggtatcg	catacgaccg	tggtgtctcg	gccaactgct	gccaacggcc	180
aaacagccct	gacattccgt	aacgtgggca	aatccttcac	ggacgtgttc	cgaagaaaga	240
ttcagccgca	tcgtttggaa	aggacctcca	cggcacagag	aatcgtagcg	gcgtctcctc	300
ctgagccaag	ccggtcagtt	cgccacgaac	cgatccatag	tccgtgtttg	gtatgtatag	360
caaccgtttt	ctaattgtcg	ggaaatgatt	atcccgtatc	ttgagcaaag	acaatatccg	420
ttctttcctc	atcggttttg	tctgaaaggc	atggcgacac	cctcctcggc	tcggccgacc	480
acaacgggga	tccggacttg	atgatcccg	ccttttcgaa	gctatcttct		530

(2) INFORMATION FOR SEQ ID NO:732

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 712 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...712
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:732

```

ggcggcaggc atccccacgg ggcgcgcgct cggcaggacg atagtcccgc attcgacgag      60
cctacaccga tttccacttc ggagcaaadc attccgaact ctccactccg cgaatccttg      120
atttcttgat ggcaaactct tcttctcgtg atagagcgtg gtgcccaccg ttgccactac      180
caccttttgg cctgcaccac attgggcgca ccgcagacga ttgcaaagg cgcacccgcc      240
cccactctac cgtgggtgata tgcaaatgat ccgaattcgg gtgttcctca caagcagaac      300
atggccgatg accaaacctc gcaagcctcc ccgaatcggt tcgtctcttc tacaccgccg      360
gtctccagac cgatggaagt gagcgtgtcg gcattctctg cggagagagg gtgcagggca      420
ggtactccaa gagccatttg ttgagatatt catctttggt actccttagt tgtatatgtg      480
cttcagagac catgggtcag gtctcaaacg cgattattat atgtaagccc acaaatttac      540
gtttttctcg gggagtgttt gttttatggt cgtcttgccg tggtttgccc ctccgagtgc      600
tctgcttttc gttctcccaa agattctggc tttcctttcc ggtttggaac aaattcgggt      660
gtatttcngg cctgtaaaac gtgggttttg ggaaatatat tttgggtttg gc              712

```

(2) INFORMATION FOR SEQ ID NO:733

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 527 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...527
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:733

```

tgctttctcc tctgaaaaca cagttagagc aacaagtcaa ttggagttca ccgtcttcgg      60
ctcttatggc agtagcgagt tctttatcaa cgttttctcg gattcctcat attggcaggg      120
atcatccttg accgcatggg cgtgcgttca ctgccatttt atccggcagt ttgatgcttt      180
tgggtgccct tattaagtat atgccttgag tgaagtcttc aatggcgggc gcttcggcta      240
cgaatgctca attccttttc tatgggtttc ccgccatctg ccaagctggc ctgttcgggt      300
ttgctatttt cggatgtggc tgtgaaatgg ccggcgtaac cgttcccggt ctatcgtgaa      360
gtggttccat ggcaaagagt tggctttggc cagggaactg agatggctat tgcccgtttg      420
ggagtcttcg ccgtgttctg gcttcaccta tcatttcaaa gcagttcgaa ggtacgcttc      480
agagcggtta gtaccgggta tttccggtac ggcactcctt tcatcgg              527

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(2) INFORMATION FOR SEQ ID NO:734

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 747 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...747

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:734

taatcacgg	agccacatcc	ggcatcgggtg	cagcttcggc	tcgccgcttg	catcgctcga	60
ttataacctt	atcatcacgg	gacgacgctc	cgaacggttg	aaaacattgc	cgatgaaatc	120
agagctgaat	accctgtcga	aatcctccgc	tctctttcga	tgcccgcaat	cgcgaagaag	180
tagaagccca	tttggaatt	tgctgatcc	ttggcaggcc	gtttccgtcc	tcgtgaataa	240
tgccgcttg	cagcgggact	cgaccccata	cagtccggtg	acattgaaga	ctggaacgta	300
tgatagacac	caatatcaaa	ggactcctct	acgtaactcg	cacatcagcc	cgggtatgat	360
agcccgaagc	gccggccata	tcataaatat	cggctctattg	ccggcaagga	agtttactct	420
aacggcaatg	tctattgtgc	ccgaagcatg	ccgtagatgc	tctttcgaaa	gcgatgcgta	480
tagatatgct	ccttatggca	tcaaagtcac	acagatttgt	cccggagcag	tgagacggg	540
ttctcgctg	tgcgcttcca	tgatgatcag	gccaaaggccg	atgccgtgac	aagggcttca	600
ctcctctctg	tgcaaacgac	atagcggagt	gtattgcgcc	gtactgaacc	tgcttgataa	660
tatctgtatc	aacgatatgg	tggtcagccg	aagcgcagcc	ggcagcggac	acttttcaaa	720
caagttgatc	acaaaaggcc	aaacgat				747

(2) INFORMATION FOR SEQ ID NO:735

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 670 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...670

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:735

atgatgcagg	acgcgattgt	cggctgtttc	ttgctccctg	catgatgcag	acgcgattgt	60
cggctgtttc	ttgctccctg	catgatgcag	gacgcgatgt	cggctgtttc	ttgctccctg	120
cacgatgcag	gacgcgattg	tcagctgttc	ttgctccctg	cacgatgcag	gacgcgattg	180
tcagctgatt	cttgctcctg	cacgatgcag	gacgcgattg	tcagttgatt	cttgctcct	240
gcacgtgcag	gacgcgattg	tcggctgatt	cttgcttcct	gcacgatgca	ggaccgattg	300

tcagctgatt	ctgctcccat	caatgcgcta	actatcagct	attgcaacta	ttttatagga	360
cttttattga	agtcttttgc	cgcagagctg	atcttaagtg	tttttcagat	tacttgaggt	420
ttgcagagag	atcgcataaa	gtctcctttc	ttcgtcaaat	caatgcttgt	gtctgtcttg	480
atcgatatga	gaggtgggaa	ggttattgtg	caacagtctc	aaaatgtgaa	gacgctcgga	540
tcggtcaaat	gtttcgacac	gattactgat	ttttgacctt	tctgagtaca	actttttccc	600
gtacacatca	gaaatgatgg	tgtacagatc	ggatgaaagc	cgtttgccga	ttgtggtagc	660
tttcagccgt						670

(2) INFORMATION FOR SEQ ID NO:736

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 830 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...830

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:736

gtggtcgatg	ataacaaaca	tgtactgacg	gctttgaaat	tgctcctgag	gggagtttctg	60
agaccgtgac	gctcctacct	tcccccaaga	cactgcttcc	acgatcgtag	aggtgcatcc	120
ggatgtactc	ctgctggata	tgaattttct	accggcatca	atacgggtaa	tgaaggatta	180
tattggctgg	atcaggccgt	agccgtttcc	ctgacctccc	tgtggtactc	tttaccgctt	240
atgcgacatt	cgtctggcag	tggaagcctt	gaagcgtgga	gcaagcgatt	tcgtgtcaag	300
ccgtggaaca	acaccgagct	gttggagtcg	cttcgcatgg	cgagaataag	gccgcaagca	360
ctcaagtgac	ggctacacct	aaagaaggcg	atcggtatatt	ctcagcaaaa	gcaaggccat	420
gtgtgaggtg	ttggagctgg	cggtcgtatc	ggcgatactg	cagcccatgt	cctcattacg	480
ggtgagaatg	taccggcaag	ggcgtttttag	ccgagtatat	ccatgcccgt	tctcctcgtg	540
ccggcagccg	atgctgactg	tggatatggg	agctttgagc	gagacgcttt	cgagagcgaa	600
ctgttcggcc	atgtgaaagg	agcctttacc	gatgccaaag	cgatcgcgcc	ggcaagttcg	660
agacggcgctc	cggcggcacg	atcttctgga	cgagattggc	aatctgagcc	ttgccttgca	720
agccaagttg	ttggcgtact	acagcaaaaa	gtggtgaccc	gtgtgggcag	caatacaccg	780
atcctgtgga	tgttcgtgtc	atctctgcca	cgaatagcga	tttgcccttc		830

(2) INFORMATION FOR SEQ ID NO:737

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1934 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1934

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:737

gacaaggtag	aaggacagct	caaggggtatc	actgacgaga	tggagcgtcg	cgcaaagctc	60
aggaggtatg	ccaagaactg	gccaaaaaag	aaaatgcaac	gagaaccaac	tctgcatcgt	120
agagcctttc	tattccaaca	acgaatattc	ctcatcgtct	acgatgtatt	caaggacgtt	180
cgtatggtat	ttgctctccc	agctctgtag	gtaagttcgg	aggcgatacg	gacaactgga	240
tgtggcgcg	cacacggg	acttcagcgt	attccgcgtg	tatgccggtg	ccgaaaccgg	300
ccggccgaat	acagcaagga	caataaaccc	tataagcccc	tttcttcgct	gccgtatcca	360
tgcaaggcta	caaggctgac	gactatgcca	tgccatcggt	ttcccgggca	gtacggatcg	420
ctacctcact	tcttgggggtg	tgaagatcgt	atcgaaaacg	agaacaatcc	tcgtatcgaa	480
gttcgcggta	caagcaaggc	atctggaagg	aagccatgag	cgcagatcag	gctacccggt	540
caaatatgcc	agcaagtatg	ctcagagtgc	taactatttg	aagaattcat	cggtatgaac	600
cgcggtctcg	ctcgtcttga	cgtgataggt	cgtaagctcg	cgaggaaaga	gcattcgcag	660
actggtatcc	taagagtcgc	aagagtctgt	ctatggcgat	gtattgtctt	ctctcgaaaa	720
ggcttataag	gaagggccaa	ggccaaccgt	gagatgactt	atttgagcga	gacgctcttc	780
ggtgtaccga	ggtggttcgt	tttgacaggt	ttgccaacgc	attggctaca	aatctgatgc	840
tcatgccggt	atcctcaaat	cgtttgacga	caagtacaaa	gatacctccc	ctcgctcgac	900
cgtaagggtg	tgcccgcgat	gctcgatatt	gacgccggcg	tatccctgcc	gacaagctcc	960
ccgatatatt	caagaatgta	tcgacaagaa	attcaaaggc	gacacgaaga	agtatgcaga	1020
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tggacaagga	aaagtttgcc	aaggctatcg	agaaagatcc	ggcagtaagc	tttccaagag	1140
cgtaatagct	gctgctcgcg	ctattcaggc	cgatgcatgg	ccaatgccta	tgccattgag	1200
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gcgatgccaa	cttcccatgc	gtatgagcta	cggctccatc	aagggatatg	aaccgcagga	1320
cgggcctggt	acaactatca	tacgacaggc	aagggcgat	tggagaagca	ggttccttaa	1380
gagcgatgag	tttgccgtac	aggagaatat	cctcgacctc	tccgcaccaa	aaactatggt	1440
cgctatgccg	agaacggtca	gctccatata	ctttcctata	gaacaacgac	atcacggggc	1500
gtaactccgg	tagccccggt	tcgataagaa	cggccgtctg	atcgggtctt	ctttcgatgg	1560
caactgggag	ctatgagtgg	tgacatcgag	ttcgaacccg	atctgcagcg	cacaatcgcg	1620
tggacatccg	ctacgtttct	ttcatgattg	acaaatgggg	tcagtgcgcc	gtctcatcca	1680
agagctgaag	ttgatctaat	ccattcgccc	tacaaaaaca	aaaatccttg	tgatcaatag	1740
agactgataa	gcctcctata	gacaccaagg	atataaggga	cccacccggt	tcgatcacga	1800
actcggtagg	tgctctgttt	tatcatctcc	cgaacgggcc	atcgaaaagc	aacggtctat	1860
atcgaaatcg	tttcgtttct	tatatattta	ttggaatcga	ttttataaac	taaaatgatt	1920
cataataagg	agcc					1934

(2) INFORMATION FOR SEQ ID NO:738

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3381 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3381

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:738

cttatgggaa	tcctccgaa	tcatagttcc	cgaggagaaa	agaacattat	cattgccggg	60
gattaatacc	tgcgatttat	agcgagtctg	ccggcattca	atcttccctc	ttaggatctt	120
acatcacatg	tcacgttgca	gaaattttgc	atctgtggtt	tctaaaaacg	tggcgcgtaa	180
actttttcat	tttgcccgag	aagtaaaaaa	atctcgagcc	aaaacgaaaa	aaatcatgcy	240
ccactttatc	cataaaatcg	aaccgaaatc	aaagtgtttt	aggctcgtac	tccgagacag	300
tgattcacaa	gcatacagga	gaatagcatt	gatgtggaat	caagtatctc	aatattgaga	360
gcgttcgatc	ggtcaaaaaga	aacactctat	ctccaaaatt	caaattttaca	tcggtttatt	420

gctgctcctt	ttgcaaagt	gtttgacaaa	tcgtatggtg	agcaaattgc	ttagatgaaa	480
aaaaggataa	aggattagtc	tgggtgcatt	tttttattta	gttttgtggc	tgtccgtata	540
tagagcagtt	gtggaagttt	cgtgacttgt	gtctaaggcc	ggtagcgggt	tttgagactt	600
cccttgggtt	agggtaaaa	cggagaagaa	aagaaaaaac	ataacagtaa	taatttttaag	660
tttaacgcaa	aagaaaagtc	tatgaaagaa	tgacgctatt	cttcctttgc	ttgctgacga	720
gcattgggtg	ggctaggccc	agaatagaac	cgtgaagggt	acagttatct	cctccgagga	780
taatagcccc	tgatcgggcg	gaatgtcgtg	gttgtcggaa	acaccactat	cgggctgcaa	840
ccgacttggg	tggcaacttc	acgcttagcg	tgccctgcaa	tgcaaaatgt	tgagagtgtc	900
ctattccggt	atgactacca	aagaggctgc	ctcgctaatt	tgatgaagat	cgtactggat	960
ccggactcta	aggttctgga	caggtagttg	tattgggtta	cggtagcgga	cagaaactca	1020
gcactgtttc	ggttctgtgg	ccaaagtgtc	cagcgaaaaa	ctcgcggaaa	agcccgttcc	1080
aatatcatgg	atgccctcca	aggtcaggta	gccggtatgc	aggttatact	acatccgggtg	1140
accctactgc	cgtcgcttct	gtggagactc	atggtaaggg	tcgttggggg	caagctctgc	1200
accattgtat	atcgtgggat	gtatgaaact	tctttggatg	ttgtggctac	gatgaatccg	1260
aattgattttg	aatcatgtcc	gttttgaaag	atgcttctgc	aacatctatt	tatggagctc	1320
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aaccgtttcag	aagggttaaaa	tatgatcctt	gccggagctg	aagatttcta	tggcaattat	1560
gattcttttaa	agatgagtat	ggtaagacat	tgttcccagt	ggattttaat	catgatgaga	1620
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gtgaaccggc	aaatttttaag	cgcttagtgg	ccggctcaac	ttcgaaagtc	gtatcaatga	1800
atggctgaaa	gttgtgcaaa	tttgtctggt	gcgatagcga	atagacgatc	tgccgactat	1860
ttggaaagta	ttatatgggg	tcaggtaact	tcggtgtggt	aacgatgcct	cttattataa	1920
cccttttgat	tgtaatgggg	atttagcaga	tgtctattac	tgatggagc	taccagacct	1980
tctatgacag	aaccgtactt	cgcaaaaaata	gaccgttcag	ttccgaatca	catcaggcca	2040
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tgttgattta	ctaataactc	cacttcttct	aagagaatgc	ccaataatcc	gtatgatcta	2160
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taatatgcct	atttgtcttt	ctttagtctg	tttaattacg	gttttgacaa	tggatgtata	2460
tagatttctc	tgttcgtaat	gaccaatcct	ctcgattcga	tccaataata	gaagcgcgtg	2520
gttctattct	gtcggtgga	tgtttgacta	tataataaat	tcattcaaga	aagtaattgg	2580
ctcagtgtat	ttcgactaaa	atgagttatg	gtacaacggg	taactcggag	attggtaatt	2640
acaaccccaa	gcactcggtta	ctgtgaacaa	ttatactgaa	gatgctatgg	ggcttgcatt	2700
tctacagcag	gcaatcccga	cctctcgtgg	gaaaagcagt	ctcattcaac	ttcggtttgg	2760
ctgcaggggc	tttcaataat	cgcttatctg	cagggtagat	ttctatgtcc	gcactacgaa	2820
tgatatgtcg	attgatgtcc	cgtgccttat	atcagtgggt	tcttctcaca	gnatcagaat	2880
gtaggctcta	taaaaaatac	ggtgtagacc	tttctcttaa	ggggacgatc	taccaaataa	2940
ggactggaat	gtatatgctt	ctgcgaattt	caactacaat	agacaggaat	aacaaagctt	3000
ttcttcggtc	tcaataagta	catgttgctt	aataccggac	tatatgggaa	attgggtacc	3060
ccaattcggt	ctatatggct	gaatatgtgn	aatcgacaaa	aaaaccggta	agcagttgtg	3120
gtatgttcct	ggtcaatcga	tgcggatggg	aataaagtta	caacaagcca	gtactcagct	3180
gacttgagac	acgaattgat	aagtctgtta	ctcctcctat	tacaggtggg	ttctcttagg	3240
tgcttcttgg	aaaggacttt	ctttagatgc	tgattttggc	tactcgttgg	taaattggatg	3300
atcaataatg	accgttactt	tacagagaat	ggggtggatt	gatgcaatta	aataaagata	3360
aaatgctatt	gaatgcctgg	a				3381

(2) INFORMATION FOR SEQ ID NO:739

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 943 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...943

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:739

aattggagaa	tagtgctgca	gcagcagtga	agccttttacg	gacagatcca	tggaagggca	60
gattcaatta	caaaagacca	agcgcgaatt	caaaggaccc	tgactttggt	ggttttccct	120
tttgtcaaga	agtctcgaaa	aagtcccaag	cgactgccac	ggaaatagga	gaatggttgc	180
ttgcaaacga	gtcggcgtat	ctgccatcga	agtggtaaag	ggctttctca	atctgaccat	240
tgctcgaggg	tatggttgga	gctgctgaac	gagatccgag	cggatatcaa	cttcgacata	300
aggtcgctac	agaggatagc	ccgctggtaa	tggtggagta	ttctctccga	ataccaataa	360
gccgtttacac	cttggacacg	tacgtaacaa	ccattggggt	atagtctttc	cgagatcatg	420
aaagccaatg	gctatcgtgt	gtgaagacta	atatcgtaaa	tgaccgaggc	attcatatct	480
gtaagtccat	ctcgcttggc	aaaagtgggg	agatgggtgtg	acgccggaga	aggccggtag	540
aaaggcgatc	atctgatcgg	agacttctat	gtccttttctg	ataagcacac	aaagccgaac	600
tcaattccct	tatggctgaa	ggtaagagca	aagaagagcc	gaagccgcaa	gcaccctcat	660
ggctgaagct	cgtgagatgc	tacgatgtgg	gaggcaggag	acgaaaagggt	cgtcgatctc	720
tggcgtacta	tgaatagtgg	gtatacgacg	gattcgatgc	cacatacaag	atgatgggtg	780
tagattcgac	aagatatact	atgaatccga	gacctatctc	gtcggcaagg	aagagtgtctg	840
aggggttttg	aggaaggctt	tgtttgtaa	gcattccgat	ggttctgtat	gggcggatct	900
tgacaaagga	tggcttggat	gaaaaatgct	ttgcgtgccg	atg		943

(2) INFORMATION FOR SEQ ID NO:740

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 187 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...187

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:740

ggcgatgatt	tgtgccggac	cggctttgaa	aatcttttagc	actctgtcca	ctcatccggt	60
gtcgggtgta	gttcgcttgc	accgatgggtg	cgggcatctt	gacttcgtcg	atcatgaaat	120
tcagcaactt	ggcttgctga	aatcgtcgat	tctacttgt	tcgatcatgt	aagttttgac	180
ctataga						187

(2) INFORMATION FOR SEQ ID NO:741

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2775 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2775

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:741

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ggtcatactc cagtttcgac cgctgcggaa accatataag gttttgaagt caggttggtc      60
cagtaaaagc agaattagag gcaatgcccg atacctcagt agaataccat tgctgaagcc      120
ggctcccaca ctgggtcagta cgacgagatg aagatacccc aaaatacacc gaaggctgtg      180
gccagactgc gtctgcattg ctgtagatcg tatgccagat ctctatccaa cgatctctat      240
cgaaaatctc atagtctcct ttctcctcct tcgtttagtt tctcatcgcc tccacgcggg      300
gattcgtaag gctttgcggg cgggttggtg tcctgctatg gcacgcttac taccatgact      360
atcagagcta atagggcagt gctcaggtcg atctcggatc gcggaagagt gtcagcggtta      420
ttccttctac ctgtctgctc cgacaccggt ggtctgtacc caatgcgata cgaactccat      480
cagaccaacg cggccaccaa gcctatcagt ccggaataca gtgtgaccac taccgcctcg      540
tcagaatcat gttgatgata gctcttggtt tggctcccag tgctttgcaa tgcctatttc      600
gcgctgtctt tcattgacgg tcacttgcac gatattgcca ctccgataat tccgatgaca      660
agggtgctca acccgataat ccaaagaaaa catccatgcc attgaatatc ttgtccatca      720
tttttatgtc cgtcacgggt catcgacata gggcacttcc atatcggtag gatcatagcc      780
cttggggaagg ccagttggcg attgagtagt actttgagtc tctccacggt ctctcagttc      840
gcacagacag gcagttcagc aacagtgtgc agtccagact gacccttttg cgaaaatacc      900
tgaatagggt gcgaaaggaa tatagttggg gtgaattgcc cctgttcgcc ttgcaaacg      960
cctacgacga ggaacgggat tgggacagat ttacgtatct ccctatgggc gaaatgcttt      1020
ccccgaatag acatcagccg tctgctcaca taggactatt acttttctct tcatggcagc      1080
tctgatgtgg agaggaaacg tccttcgac agatgcgtct tgaccatttg ccgtattctc      1140
cggatacggc ttctcgtagg gtcgagtggt tccgatttcg tactgtacgt cgtagctcca      1200
ctggttggtg tagtatgccg cacttgatc agatcgggat tgagcttgac cagatagtcg      1260
cagtcagcag gtgtagctct atgtatctgt ccttgggata gcctccgtac tccttgcgtg      1320
taccatgtg gagaaagctg tgcactcgt acccataccg aactgctcca catgtgccgg      1380
atgccatgct ggaatccgcg gccggcactc agcagcagta tagcagcagt acaccccgag      1440
ctacggcaaa gccggtgaga gccgtacgca catattcttg cgcagggtgg ctccaatc      1500
gtgcaaatgg tctaagtcga cataccgtct atcgctcttt tcaggtctta ggccccgatg      1560
atgccgtctt gatattgata atccgatccg tactgtcggc taccgactgt tcgtgcggac      1620
gatcaccata gtgatcccat cgcgattgac actgcgcagc agctcctcac ctctactgtc      1680
gtaacgctgt cgagtgtctc cgtaggttcg tccgcagaat gacctgtggc ttggcagcca      1740
aagcgcgagc tatggcaacg cgctttcttg tccacccgaa agttcgttgg gtaggtgatc      1800
agcccaatct tccgccccac ccgtcgaaag tattccatgg ccatctcatt gcgtttgcgg      1860
cgctcatgcc ctgatagtaa aggggtaggg caacgttctc cactgcattt tgaatgagat      1920
cagattgaag ctttggaaca cgaatccgat cagtctgcct gtatctccgc cgctcggttc      1980
tcggagagat tgcggatgag ttccgctgga ggcgatactc gccctcgtcg taggtgtcga      2040
gtacaccgag gatgttcaca gcgtactctt gcccgatcca gatgctccca tgatagagac      2100
catctccctt tggcgatgtg cagatctata cccttgagca cgtgtagagg ttgtgccccg      2160
gataagtttt gtggatgcct ttgatgtcga tcattttatt gcgatgttct tttattgttt      2220
gtctctcttc tccttgcgca tgatgatgga aggatcagaa gtccgagacc gccaaaaatc      2280
agcagacaga ttcccgaag ggttcgaatg tgtggccgaa gctccagccg tcaagatttt      2340
ctattacacg ttgaaaacaa atgtcagaaa gaaagccagc nancagtcgg atgccatgc      2400
caccatcatg aaacctactt tgatgccgag cccttgattg tctcgggtgc aaaggaggaa      2460
gttaactgtg ttaagtctgc atttctttcg ggagaaggca ggagtcgagc ttctcgatca      2520
ggcgaagtgc ttgcctcgg cgtacgtaag ttcgaaaatc tttaaagatg aagtagaaca      2580
ctaccgcagg taccaaacag attctaagtt cataatcggt tctttttagt ttgagggtta      2640
ttacttggtt tgtttgctc tttgacggat agtgctcgaa aaggttacac ctctgatcgt      2700
tggttaccct cttcaagaga ggtcggtcac cgtcgatcct gcttgttgtc ttttcgttt      2760
ctcttgcttt ctttc

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(2) INFORMATION FOR SEQ ID NO:742

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2101 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:742

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aggaaataga agttcccttc atagcagaga gcccttattc gttaatgact cacaattgga      60
gggtaaagaa acctatTTTT gctcttctga tgggttctaaa gattgcatta tacattgtgc      120
gggttttctg attttaatat atatgtctcg ggtctaattc ttctagtctg agtcgtgtat      180
tcttcgagat taaagggggg aatatcaacc cgttcaattg cagcatatta gaggtgtaat      240
agcagcatta tattgaatga atatggctgg gatgatgaac ttggaaaatt ggacaagggg      300
tatacagtac atcaagacat gataacaaaa cggagcgttt tggaaaaaat atctttggat      360
ggccttgtat aaaacagatg caatactttc tgttattggt cgattttgaa aggtagatat      420
tatggttatg ctatacccaa aaagaggata tggcatcgaa cccttatcca tggttgacag      480
acgaatattc acaatagatc catcactatt gggtagacaa ggaaaagatt ttatttcttt      540
gaaatcaatc tattagagga agttaataat gttgataatg agcaatgggt gatagagggt      600
atcaattacc agctccgcgg ttgctcttga aagacaagat aatgcagact ggggtgctgct      660
aacgagctat gatgggcata aaacagagca gcagatggta ccatcaaaga tctcttcttg      720
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aacaaacttc tatgggcgat ggatgcctga atgcctaaat ggaagcacgg atttttgtgg      840
aatgaatacc cttgggcaga gacctacatt cgacaacgag ataatgggaa aagaatcata      900
gctacgaagg ttaggtttt aaattgcagt ttcatatgag tctcaattgc aggaaaatag      960
cttggttttg atgattctaa gaatggttgc ccgaagtatg catgcccaac catcacatta     1020
tggaagacta aagttataca cagccgaaag aggtgtagta agagatataat ccaccaataa     1080
atcgtttcgg taaatattcg ggttgaagct taaaggggtt agctatggaa aagactattt     1140
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atgagagcaa aaaatcatca aggttaggaa agatttatga cttatcaggt tcatatgcat     1260
atgaagatag atctttctgg caatagagcc tatgcacatc tccaacgtct cgtgagattt     1320
cttttgagag gtcaggaatt gcttactgag aagctctttg gtgcataatc atttttttgt     1380
ccatcgctcta ttcacgactt cggagtgtat gatccccctt tggggcaagg gtctttgtgg     1440
tacaaatggc aatttgtggt acaaagacac ccttgccagt gtcaagaagg gatgcttcat     1500
tgctctacc gatcactctt ttcttttagc ctcgagcaaa cttaagctcg agacctcgat     1560
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gtagcgaatt aagtatgat ctttcagctt gccctcggg gtgaagtttc cccaagagag     1920
aaagtccatg aagccctcga agagcaggag cttgtgacta cagtcctttt gattgtcggt     1980
atggccttgg gtgcaaaaca gcccttaaat agggattgct tagctcccat ctttcagcat     2040
cattggggaa gccagggaa agaaacactt cctagagact ttgtaataga cttccgataa     2100
g                                           2101

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(2) INFORMATION FOR SEQ ID NO:743

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 793 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...793

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:743

```

cgacaaagaa ttaagaaggc gattgactac aaagttgatt gccttttttt tgatgactgg      60
ctcaggcgctc aaatcacgaa agcaaaagag gctgtcccat agagtcaggg ggcagcctct      120
tcaggatcag tatattttgt gtctctgtta ttcgggacga gagcaacggc tatagaatgt      180
gagttcttcc ggacggaagc gcgcacgtag ctgtcgatct tctcctgctc agcctgaccg      240
taacgagata tacctctgcc gactgacgga atgaatcgtc gtcattggca gccacatcag      300
cagatggccg aagactgcat gagcagtcac ctctacaagc cgagtgcctg gaaatcgagc      360
agctcctggg ctttctgttc tgttacgaat gcatcagtgc ttcggcacgg tcggtcatac      420
gagccagagc ctctttcatc gttgcaactc tggcttaact tctgtctgct ggtactcttc      480
acggatacga cgatataagt gcctgtcgtg atatggcgaa tggctgctac gacctgcaat      540
gtgtgggtacc ttcgtagatg tttgtgatac gtacatcgcg gtagagactt cgcagggtga      600
gtccttcatg aagccgctac caccgtggat ctgaacaagt catagacatt ctgattggca      660
aactcggagg tcatctcttt gcccatgggg tataggcatc tgccagacgg ctgaaatgct      720
tcattttccg cacgtcttcg gaagtcaatt tgcgctcgtg gctgatatcc tccagcactt      780
tgtaatatcg aca                                     793

```

(2) INFORMATION FOR SEQ ID NO:744

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 548 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:744

```

ggcgaaatag atgcggagct tatcgccgat cttgagatga agtttgtcgc agtaacttgt      60
ggcagaagaa taggattggg taccgtatcg gcagaactaa gctcggataa tttcccgaaa      120
cggtttgacc gaagagcggg ttgcgagtcg gagtgaattg tccccatca gtagaatacc      180
ggcaaaagca ctgtcttctt ggcaacacct gtcatttcga tcgtgggcac taccgggtcc      240
acacctcgac agaggttata gcttcaagca tcccgaccgg agcattgaaa tgattgaagt      300
tccggccacg ggggcaatgc atagatgtcc cgtatagccg tatccagact gcggatattt      360
tgtttgaaag caccagctat cgacacggta atagcatgac catcaagctg agcatgatac      420
cgatcacaga gagacgaaca aaggggctat tcctttcccc tctttccctc cgcccctaaa      480
gagccgtccg ccaaaaagaa atcgatcttc atcggccctc taccctattc ttctatcagc      540
ggagaaaaa                                     548

```

(2) INFORMATION FOR SEQ ID NO:745

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:745

cataagagca	aaaacgattc	gtcaattttc	ctcaacccaa	acatctcatc	ggggaacgga	60
ttcgggggatc	aaaaaaagaa	aacctatggca	tctcgactac	ttcctgccac	aagagaaaaa	120
tcaaggggga	gccgcaaagt	aaatactgcg	actccccctt	acttggtttg	agagaaatat	180
cagatactga	aagctatgta	tggaagaaca	acagtcctat	agtcgcaata	gcatcatctt	240
cttcaattat	tagttgacta	caactttcct	tacattgcta	ctcgtggcag	gacttgcaga	300
ctgacaacgt	agactccatc	gaccaatggg	tccgtcatag	actacttccg	ggttttacgt	360
ccaatcgaat	cagaagtttt	ccgtcagttg	gaaaaca			397

(2) INFORMATION FOR SEQ ID NO:746

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 772 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:746

gaatttgtgg	gcctaagaac	cgcaatcatt	ttcataagaa	atacctccgc	ctttattaga	60
ccaggaaaaag	atcgaaatga	ccattcctga	aaagccccaa	gtaagaacca	gaagtatcga	120
acgaaggaaa	caatcaaagt	atatcattcc	caaaagggtt	ttcaaaccct	cgaaagagga	180
aataatataa	tcggtgagg	gttggaagg	tattcctttc	tgaccatcag	gacggttgta	240
aatccagttc	ccgtcctgct	tttatttcgg	aagcgggata	atcgctgcc	acatggcttt	300
tcggtctatt	aagttcgggt	ctctatgctg	actgtgataa	agatatccgg	acaaaataga	360
gttctatcct	cctgtagaat	gtataaagga	ttggagaacg	actaggctgc	tttgaggaa	420
tcttttattt	acggaaacaa	atttctttcg	gacaactttt	gcttcgcatt	aaagaattac	480
agcagcgatt	cgaagtatcg	gcacaacggg	caagtagaaa	gtttttgcaa	aatattctat	540
tcctaagggc	gtaatcgttt	tccatattat	ctctcaaaag	gtctctcagc	cctcgaaaga	600
ggaaataata	taatcggtgt	aggagttaga	aaggatccct	ttctgaccat	caggacngtt	660
gtaaatccca	attcccgtcc	tgctttattt	cggaagccgg	gatcatcgcc	taccacatac	720
gtctttcggg	cttttggtcc	aattccctgc	ttaattcacg	gaagatatcc	ag	772

(2) INFORMATION FOR SEQ ID NO:747

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2249 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:747

```

cctctgcttc ccgtacagcc gtatgtgccaa aaagcgagaa gcctgtaatt cacctgcagc      60
atagacattg ggcagggaag tttgcatcct ctcathtagt ttacaccttt gccggcaagc      120
accaatccga gcgactcgaa tccttgcgca cggggcgacg tcccacactc atcaggatac      180
gtttctccttc gatctcttgc tttctccttc gtattctacc gtaacagctc cgttgcgaaac      240
cgatgtactt tgtgcccagag gtagaatttg attccttctt tttcatagtg agcggtagca      300
tagctgcatg ttccgggatcg ataccgttga gtatttccgg cagatctcca ccacgtgcac      360
ttgcgtaccg ataccgttga agaaagaagc gactccattc cgatcactcc accaccgatg      420
atgacgagag aggtcggaat cctttgttct gtagagcttc acggtttgtc caatactctg      480
tctgctccac ccgggggatgg gtggaataaa cgtctccgaa ccggtacata gtagcagggtg      540
gcagctttgt actgtgcttc gcccgcatga atgccgatga tgccgtctca tcgcatcccg      600
ttacggtagc ttctgcccgc accatctcta ctccggctct gtcaggcgtg aacggatgcc      660
tgcatgcagc ttgcgaatga ttttactttt ctggcaatca ccttgccgag gtcaagtcca      720
tcggccgttc cacttctgca tatttagatg ccgtagcaat ttgatgtagc actttggccg      780
agtaagtagc gtcttggtcg gtatacatcc ttcgttgagg catacaccac cgaagcattc      840
ttctcaatta ggagggtttt caggccacct ttggcagcac gtcggcagcc gtataaccgg      900
ccggccctcc accgatgata gctaagtcgt acgcatagtt ttatagattg ttgcgttcga      960
tattcttaaa gtagttgtac tgcccacttt cagctccaca caggcagctt cgtcacagac     1020
aatgatactt gacgatggag ctgcaaggct gtgatcgctc acatttggct gactgcactt     1080
ccacagcttc acgaagagca cgggcttttag tatgtccggt cagcagggtc ttaacttccc      1140
tgcatccata attgttccta ctccctacggg gagagccggt tcggaacctg attcgtatcg      1200
ttgtcgaaaa agcgactggt agccatacgg tatctgtagt tagcgtcttg atacgggtgc      1260
gagaggttaag agaaaccccg gctcattgaa tgcgatatgt ccgtcaggtc ctatcccgcg      1320
gataaaaaggt ctatgcctcc ggcagcttca atagctctct cgtatgcata gcctcggccg      1380
tcaggtcagg agcattgcc a ttgagaatgt ggatgttctg agcaggatgt cgatatggtc      1440
gaacaaatgc cgatgcatga atgaatgata ctctccggat gctctatagc aaggcctacg      1500
tattcatcca tgttgaaggg attacgtggc ggaaagatat gcataccttct ttgcatgctt      1560
tcactaacct ctgtacattc ctatcggcga agaacctgtc ggtagaccga gtacaaaggt      1620
ttttcggccg taggagctgc tttatggata cgctcgatga cgtagtggtt gcccatttgg      1680
agagcttggt gtaatccggc tctatgatta atctcttgta agattggggg tagtccagta      1740
gtggatatga tatattactg acgacggctt tcagacgttc ggctatttta ttgccaaagt      1800
cccaaccctt ctctacaggt catccgtggg agacatcttt tgttccaaag gttcgcctac      1860
cattcccaac ccatttcttc tgcaaaaagga actatctttt tcacagcctg acggcccatg      1920
taaaggagcc gaacacgctc agatagcgat cttttacctc cgaagacgga tcatttccat      1980
gatattcttg atcggtgaaa agatctcatg ctgtatgtgg ggctaccgat tatcactgcc      2040
ttgtacttaa agatgtctcg caggatgtta gatgccggac tgaatgctac attgtggcat      2100
acaacgtgcg gatgcctnct gcagcaatgc cctgtgcgat cgtatctgcc aataactnct      2160
attgccgtac atagtgccgt agagaatcac tgcaccttct tcggctcgta tcggctcact      2220
cgatcgtaga ggtcgaaggc ttcagagaa

```

(2) INFORMATION FOR SEQ ID NO:748

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1243 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1243

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:748

```

acgttttttag gagcatgaaa caaaaaattt cacgaacgta aatgggacga tcgaagtttt      60
acttcgggtct cgttttttcat ctctatttcgc ctatgaaatc ctaaggctct ctttttagaca      120
aaaaatcttt ggccaaaatc cttctatggg agcatcgagg aaatgaagtt gcagtcctcg      180
gtcatatacc taatgaatag gggagtggat cggatcggtt tgctccctct cgaagagagg      240
tttcttcccg tttcgggtctg ctttatgaga attattcgaa gcagtcgttg gcggtttaag      300
gtgtttcata tacctttgcg ctgcaatgca atcataaaga ctgtttctcc atgttggaag      360
agctcattat tctggatttc ggtttctcaa cccacagctc atcgccagac gaattcgcg      420
gctgaacacc tactgagagg ttatccctac aacaaactgc cggaagacct ctgaggagt      480
cgaggcatca cctgtcgggg agcccttatt ccgtgtatga cagcaaggcc tttcgatatca      540
actgagcgaa ttacggggga agttgcctct cttgggtatc tgctacgggc acagagcctt      600
gtccatcaag ccggtggcaa agtagagccg tgcgacatcg cgaatacggg cgaacacatc      660
tgacctccg gcagcctgat gatgcattg gatgcattg caatccggca ctacgggatg      720
gatgtccac ggcaaccat tacgtcattg cctgaaggat tcgaggtcat agcaggtacc      780
gaggtgtacc caatgcagca tttcgcatcc gaggggagaa aacgtggggc gtaagttcca      840
tcccagatc taccactcgg aagaaggtag caaactgctt ggaacttcct cgatatatgc      900
ggtatgaagc gtgattggac tccggcttct tcatcgaagc gactgtgcag gaacttcgcg      960
aacgcttagg tgatgacaag tgatcctggc actctccgga ggtgtggaca gttcggtggt      1020
ggcgtgctc tgaacaaagc tatcgccgc aacctgactt gtatattcgt cgatcacgct      1080
tgctgcgtaa gggcgaattc gagcgcgtac ttcaggacta cgagcactgg gtctcaatgt      1140
aatcggggtg aatgcataag aaaaattctt cgcagcctta gcggcggttac cgatcccag      1200
caaacggaa gattatcggt cgcggttcat cgaagtgttc gac      1243

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(2) INFORMATION FOR SEQ ID NO:749

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1042 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1042

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:749

```

gccgaaggat tcgacgggct gatactccct gcggaaaatg cacgtgaaga gccgtcgtga      60
acaacctcaa tgtctatggc gtgaagcata ttgcagaatg atcagccatt tcaatggggg      120
cgatcagcta cagccacta tagtcgaacg cgcagggaat ttttcgacca tcagcagcag      180
gtgtctttcg acttttggag gtgaaggggc aggagaaggc caagcgcgcc ctcgaagtgg      240
cggcccaggc ggacacaatc tgatcatggt cgggagtcct gccagtggga aatcatgatg      300
gctaagcgaa tgcccgaat tcttctcccg tttacactta gcgatcgctc gaaacgacca      360
agatatactc cgtggccggg aagctgggag tcattcgatg ctctcgacct aacgccttt      420
ccgctcgccc caccattcca ttcttcggc gcactcgtgg tgggcggcac ttatccacag      480
ccggagaga caagtctggc gcacaatggc gtgctctttt tggaacgagc ggccgagtta      540
accgctccgt tctcgagggt atgcccagc ctttgggaaga tcggcagaca ccgttttcga      600
gagccagaat gacggtggat tatcctgccg gattcatctc gtggctgcca ttgaatccct      660
gtccttgccg ctactacaac catccccacg cccttgccac tcgcgcgccg gacaggtgga      720
gaaatatctc agccgatatc ggggcctctt ctggacagga tcgatataca ggtagagatt      780

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acgctgttcc	ttttgagaaa	atatccgata	gccggccggc	cgaaagcagc	gagaaatccg	840
ccagcgagtg	gttgcagcac	gcgaaatcca	aagcaaacga	ttgccgacta	ctccggtgtc	900
cattgcaatg	cccagatgga	cgacaaattg	agaaccgcta	tgactgccc	gacgaaaagg	960
gacttcaacg	attgaggacg	ctatggaacg	cttcgacctc	tctgcacgtg	cctatggccg	1020
tatcttgaag	tggtcgtac	ca				1042

(2) INFORMATION FOR SEQ ID NO:750

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:750

ggactatgcg	cacacgccgg	atgcactgat	caatgtattg	gataccatag	accactggca	60
aaatcgca	aggtgatcac	agtggtagga	gcaggaggaa	tcgggacaaa	ggcaaacgtc	120
cgatcatggc	aaaggaggca	gcccgcaaag	cgaacgtttg	atcctgacat	cggacaatcc	180
gcgtgatgaa	gagcctaaga	aataatccaa	gaaatggcta	tcggactttc	gacagaagac	240
aggaaaaaac	actgctcatt	actgatcggg	cggaagccat	ccgcacggcc	tgacagtggc	300
agagaaggga	gactttgttt	tgatagccgg	caaaggatcat	gaacttatca	ggaaatcaga	360
ggtgtcaagc	accattttga	tgatcgcgaa	gtgtctgcga	tgccatgtcg	aaagatcgta	420
tcgttcaata	aactctatag	acccatgttg	tactatctgt	ttgattatct	cgaaaagcta	480
cagctccccg	agcgcgactg	gtccatacgt	gtcatttcgg	tcgg		524

(2) INFORMATION FOR SEQ ID NO:751

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:751

gcaccggcga	cgatgacgcc	cgagcaggct	ccgatggatt	ggatgatcaa	ttctgcccc	60
gcatatttcg	gcgtcccga	atgggtccga	tacctacgcc	aggatggcaa	tggaatggc	120
ggcttcgaat	acttgcccga	ccttcagccc	agataagctg	cggcagcaga	gaaaataact	180
gtcatcacca	aaccacagg	acagaatagg	aggtaatctc	gcgcggcgta	ctgccggcag	240

gcaccccggt	tcgtactctt	cgcccggtt	cagctcccga	tatgcatttt	cgggagcttg	300
ctcgttgtct	gtttgttttc	catataatat	atgtgtttga	ttgatcgttt	tttgaccgcg	360
cctccgatcg	caataagagg	gcggagaatc	gtctgaaaca	aagcgctcaa	atatatacaa	420
cttcgttgaa	aaccggtcct	tcgatcggac	aggaagcccg	atcattcccg	gcagtatatc	480
cgtgcgatgc	cttcggagtc	gatagactac	agaccgcccg	tttcgccgcc	gccttgctc	539

(2) INFORMATION FOR SEQ ID NO:752

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:752

cagtgtttga	attgactctg	atatgccgaa	aaatacgaaa	aaagtcgaaa	gaatcaatat	60
cctccgacaa	tcaacgtgaa	tacaacaatc	aaaagtaaac	agactcttct	ttatctctaa	120
tccctgagat	ccagaaagaa	cgcttgtagt	gcaggtcttc	tgacttattc	aaggcttcgc	180
tgcttccca	tacgatctgt	atagtggctt	tctcgtggca	aaacccttac	atctgaactt	240
acagcgaggg	tacagtccca	gaatttcact	gggttccctt	ttcattctac	actcatgaac	300
cggtgtagaa	aaccattgac	acggcaaaga	tattcattat	atcatactag	tgcggaataa	360
tgaagaaaaa	aatatggatt	tgtttgagga	tactttcagt	atacgtcatt	aaggctaata	420
gggtgtgaaa	tgccgctgat	atttatgtgt	tcgtgtgtaa	ataaaaactg	aggctgtctc	480
gtcatgagac	gcctcagctt	catttattgg	taggaatatt	tgggatatcc	cgctgcagta	540
ttactacaat	ccgattccaa	gcgttctctt	catagatttg	ctctgatggc	ccttccttca	600
atggtatgcg	atccgcagaa	cacccat				626

(2) INFORMATION FOR SEQ ID NO:753

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:753

ggcttatgct	catttatagt	atagtgcagt	caactctctg	aacaaaagga	ttgaaatagg	60
aatcaggagt	acttttgaca	gataagccca	agtatgcagt	ggatgatcaa	gtctcgatca	120

acaataaatc	agtgtgaagca	tgctgtcggg	ttcagcactt	cggccgcaat	ctcacggagc	180
cgatcggagg	taatggatcg	atacgatgga	aaatatccga	aaggggatcg	tatttgccat	240
agagggcata	ctcttgccca	atgaaaggaa	tgtggactcc	ttattgtcag	ccgaacgatg	300
agctgtcctt	tgaactgtcg	cttggcagat	tccagttcta	tcgagaaaga	gggtgttcga	360
tcaaatagcg	caactctttt	ctgacaagct	cctggctgct	tccgcatatc	ggggagcgca	420
gccgaggtag	atattgaaga	ccccgtatcg	gaatagggcg	tgtaattgct	ctctacgtta	480
tagacatagc	atgctcttca	cgcagtgaga	gattgagccg	ggagttcata	cccgccctc	540
gaggatatta	ttaagcagac	ttagcggaa	gcgtctgtcg	tctgtggagga	atacgccgga	600
ccgcccata	ggatgtgatg	ctggtaggta	tccttgtccg	tctgatggta	cgccgagcaa	660
agccttctct	gaggggtatg	agaggatacc	atcgggtatta	cggatggaga	ccttctcggc	720
cggattaagg	ggccatcggg	caggtctgct	tctccggcca	ggaagaagat	catattgtcc	780
ggccgtagtg	gcgacggagg	aagttacgac	ctatttgtcc	cgtgatgcgt	gatcagaagc	840
ctctgtgccg	agaatgttat	gtccgagagg	atgatgaccg	gaaaggatat	tctcgaattc	900
gtcgaatata	agttccgagg	gattggtcct	cataagaaat	cgattttcgt	cgaataacaa	960
ccggtttt						967

(2) INFORMATION FOR SEQ ID NO:754

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1495 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1495

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:754

tcggcatttt	cggttcgaaa	atccaagttt	ccaaccaanc	cacagacttg	atcgctcccc	60
tttgcatagc	aaatctgtga	ctgccggttc	atccggaaca	ggaaactttt	ttcttggtat	120
cgttcaagaa	cgnaaagtct	gtgccgacga	ttggcacaag	tccttcccgg	cctggttagag	180
attgaggact	gtcagcaatc	ggactttcgc	atcggtcatt	atgacagacg	aggaagtatt	240
gaacaccgcc	aaacgggtcat	tgttatgctt	aaagggataa	atccgaatcg	tgcgcacgat	300
aattgcaata	cgtagttaga	gatggcatac	gacttttacac	aaaattccgc	aacagcctgg	360
agtacagcta	tcaggaagca	acccgtctcg	gctcgtagcc	gtgacgcaag	atatgctcgt	420
actcggatc	attcgcgacg	ggacaatggc	gcgatcgaca	tcatgcggca	ctatgggac	480
aactgttacg	actcaaacgg	ttgatcgagt	tggaagccat	cgccgagagt	ttgcctgctc	540
gcctgaggga	tcgcccattc	tcaccccttc	ggctcgggag	gctatcgaga	tgccacagac	600
atctgtgccg	acatggagga	cgaggccgtc	agcccggcca	tctgttgctg	agtatcctca	660
actcgacaca	ggagagctta	gtacaaagat	atztatgaaa	caaggtataa	aatacgacac	720
catcctgtcg	gattattcgg	acagcgcaac	ccctccgaag	ggaagtctcc	ctccgaaatg	780
gagacctcga	cgggtacca	gacaacgact	tcgacgacga	agaggacgaa	tccttccgcc	840
ttccgggaat	agcgggacag	gcggaggctc	cggcgacgcc	ccgaacagaa	taccggcgga	900
ggcgatacta	ccaccacgac	acggagtgga	gcgacacgcc	tgactggagc	accttcggga	960
ccgacatcac	tgccatggcg	cagcaggcaa	gctcgacccg	gtagtgggtc	gggagcagga	1020
gatcgaaagg	tgatacagat	actcagccgg	cgcaaaaaga	acaatccggg	gctcatcgcg	1080
aaccgggtgt	aggcaagagt	gccatcgtgg	aaggactggc	cgaacgctcg	tgaacaggaa	1140
ggtgagccgt	attcttttctg	acaagcggat	catcagctcg	atttggtcca	gatggtagcc	1200
ggcaccaaat	atcgcggaca	gttcgagagc	ggttgaaagc	cgtgctcgat	gagctgaaga	1260
agaatccgca	gactcctctc	tcacgacga	gatacatacc	atcgtgggag	caggctctgc	1320
agcggatcga	tggatacggg	caatatgctc	aaacccgctc	ttgccgtgg	acggtagcgt	1380
gcacgggagc	cactacgctg	gatgagtatc	gtaagaacat	aaaaaggacg	gagcactcga	1440
acgccgcttc	cagaaggtgc	cgatagcccc	tcgactgcag	aagaaacgct	gacca	1495

(2) INFORMATION FOR SEQ ID NO:755

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 625 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:755

tcagctggca	gctcaccctt	ttcgtcttca	tctcctacc	gatagccggg	ggctgatggg	60
taaggtgggc	aaaactctca	agcgcaagag	tctggaaggc	agaatcagtg	gggaagcctg	120
atgagccaga	tagaagaaac	gcttggcgcc	tgcgtatcat	caaggcattc	aatgccgaga	180
aaaagatgca	ggatcgttcc	atcgtgccaa	cgagcagttt	cgccgtacga	cgatgaagg	240
cttccccgcc	agcagttggc	acatccgatg	agcgaatttc	tcggcacagc	tacctagcca	300
tcgtactgtg	gtatgggggt	acccttatcc	tgaacaatac	gaggagatcg	atgcttccac	360
ctttatatat	tatctggtga	tcttctacag	tcgatcaatc	cggccaagga	gctgagcaag	420
gcacccctacg	ccattgaaaa	gggttgccct	ccatgtcgcg	cgtggacaag	atcctgatgg	480
ccgagaacga	atcaaagatc	ccgaacagcc	ccaccccggtg	gtgttcgaag	aggaggtcgt	540
tacgaccatg	tgtggttcgc	ctacggcgaa	gactgggtgc	tgcgcgattc	tgtctgacaa	600
tcccgaaggc	aagacggtgg	cattg				625

(2) INFORMATION FOR SEQ ID NO:756

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:756

acttgatttc	gtatgcaatg	atcgtaaaga	gtttattacg	ttttgtcttc	aggtgctaac	60
gtggatgnca	gaaacccgaa	ggtttggcag	gttccggcaa	agaactatac	ggaaaactct	120
ttgcagataa	gggatattct	cgcctaactc	tttgaaagcc	tctttgatga	cggcatccat	180
cttgtaaccg	gaatcaggca	aatatgaaga	acaaacttat	gccctcgtgt	gacagaatca	240
tgttggaaaa	gatacatcat	agaatgcac	aatgatatgc	tgaaaaacac	cggcaacttg	300
tacactcaag	acatcgatca	atcaataact	tcacatgaa	tccgtctcag	ctatagtggc	360
atactgtttt	tacgacaata	aacctgaaat	cattttggaa	agagcaccca	taaggcagca	420
caataaatat	ctccttagct	aagattaggt	tcgtgttctt	tgaagtaacc	tactatcaac	480
cacttatcca	aggggaaacc	caatgggagt	gtagcatgtc	agtaaaggca	taagtccaca	540
attgccaaagt	ggcgactgaa	tgacgaggta	gaaagacaag	cacaaggaga	agcctgaatt	600

gggtgaacga	tagtccagag	gctgttaa	gagccgtacg	ggaggcaatt	acaaacgcca	660
ctccgtagta	ctttccggtg	tagtctacg	attgaacaaa	aggtcgaacg	tcgcatccga	720
cagtttgctg	cactatagat	tatgcaagct	aatggggat	tgccaaagtc	gaggagccta	780
aaggtatgag	gtatagcctc	tgaaaacccg	atatggcaac	ggagctcccg	tagaatccga	840
ggaggatagc	atccctgtaca	tggcgaagat	gaacagttgg	aactttatat	tgaaaagcat	900
gtaatctcac	tctatgtcaa	acaaatgagc	gttcagatat	atcagatata	gaagataagt	960
tttgtgatat	atacgaaata	gcctttctac	gagtgccata	tccattatta	ctaataaagt	1020
aatccaatcg	cccttgaatg	gcaaaattct	cctcttgaca	ggcgttatat	ggttgtctga	1080
ttcaaagtaa	gagaatcagg	caagataatc	aagaaaacgg	tttatcttgc	gtaggactta	1140
acgacagggc	tataaggaag	ttcttgggat	gtggatggcc	aaggcgagag	ttcttcgttt	1200
tggatgggca	tattgaccga	tttaaggctc	gtggtgttga	ggatgtgctc	attacaataa	1260
cggataatct	caatacttca	catacatcat	taaaacgggt	ttccccattc	caccaccaga	1320
tattgttgtg	catcagatac	gcaattcctg	caagtatgtg	gttttggaag	gaatgaagga	1380
tgttacggct	gacatgaggg	aaatatatac	ttccgtaaac	cagaacaagc	ggtatcgcca	1440
ttatctcact	tcgagcaaaa	tgggggttcaa	gtatagacat	gcggtacaga	gttggcatcg	1500
taattaggac	gatttaaatgc	tttctttgat	ttctctgtag	agatgaacga	tttttacacg	1560
atcaatctat	tgaaaatctc	aatgggaaaa	ttcgcaaaata	catgaaaaaa	agatgtcctc	1620
cctacagatg	atgctcttcg	caagtctgtt	tggttagctc	tgcaaggata	gaaaagaagt	1680
ggacaatgcc	gataaaaaaa	aaccgggatt	gggcttgaat	caattttattg	ctatatattga	1740
aaatagaatc	gagatttagt	cgaggctaaa	tctcaaccca	aattatcggt	tacacaaaaat	1800
aatggacagt	tccttttcgac	tactcatatc	gctacctttt	actcctttga	gtgaaaaatt	1860
ctctaccaga	tggtcacact	tatcctttgc	atcttcaata	tcttgaaatt	cactacctta	1920
aaattgtttc	ttttacagca	ctcgataatt	ccataatgta	ttcattaatt	cgtttttttt	1980
catcttctgt	tttttttagag	acttcctcag	ggtagtcttc	attttcaa	ccagccgatc	2040
atztatatcc	cttttgtttc	taatcctatt	ataagacaat	cttgtttggt	tatatttctc	2100
aaaaaatttc	tgtgagatgc	attccctcaa	taataatttt	ctctctcctg	cttcgaaaat	2160
ctccagcatc	tggtcaatca	tattcgaaac	attatatttt	tgaattttta	ttcactatca	2220
tccattctat	acgtggatgt	ttgataagtt	tttcatctct	agtgcataata	cgaaaaaaat	2280
tccgaaccat	atcagtggaa	agccccctga	aaattgatat	ttatttgata	gatgattgga	2340
tattatagat	ttccagtaaa	agagcctcca	actacaacta	taacacaagg	tcttgtatat	2400
gtgtgaaggc	atctattgat	tttttttccc	ataaatccct	aaaatgtttc	caaaagccca	2460
tcct						2464

(2) INFORMATION FOR SEQ ID NO:757

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:757

tcctctccc	aaggatagac	gtagctgatc	atcacatgca	gcgatggcga	tctatgtctg	60
cccgcagagg	gatgtagcgt	tcgagatagg	ccgaatcgaa	gagacagact	tcgattcggc	120
agctttgtta	ttgctacagc	ccaaagcgtg	atcaaagaca	atggaaagag	tagcaacagc	180
acgctgcgca	tggattcatc	atagtgaaag	attgtaatcc	cgatagattc	attttactgc	240
cacaattttac	gcaattcatt	cggataagcc	ttttttttac	gcgcccgtgc	acatctacga	300
gcctgtttcga	agttattaga	gtatcgaaaa	ttgcttgcac	tttatttgaa	tctagtacgt	360
aaaaacaact	ctgctcagaa	tcttaacata	ttccatgcaa	aagagggcct	ctgtgaagaa	420
atgcttcttt	aaggctgttt	taatattgag	caccttaaga	tgttactcga	attctgatga	480
ggtggatctc	tcaaacggtc	aaatctgttc	atgtggcgga	tgaactatta	tctttggcag	540
acggagccgg	tctttccatc	atcgaatgag	gtgagctcgg	catttccctt	tgtgttaaa	600
tcttaatcaa	agacttattt	gtgttcgata	tgcagaggaa	aaagatagcc	ttatcgttgt	660

atccggcgga	atggacagcg	ttacgcgatg	tacgagaaga	gagcctccat	cgctttggct	720
ctcagttttg	actatgttcc	aagcataatg	cccgtgaatt	gtcttttgcg	cgtctccatg	780
cagacgtttg	ggtgtggagc	atctgattat	ccccctcgat	tttatcgggc	agtttttcag	840
agtgatttgt	tgcttagtgg	aggagatatt	ccggaggggc	gaacgacgag	gaaaatatga	900
agagtacggt	agtgcctttt	cgtaacggca	tatgctggcg	gtagctgcgg	ggttagccga	960
gagcagggga	ttgaggcgga	ttatatcgcc	aatcacttcg	gcgaccatgc	catatacccc	1020
gattgtcgtc	ctcattttatt	cgteccgatga	ccgaagctgt	tcggtgcggt	accacgaagg	1080
cgtgctcata	gaagcacctt	atactgatat	tactaagaca	gatattgacg	gataggagct	1140
tcattgggta	tagactatgc	cgagacttgg	agttgcacaa	gggggggggtg	tttcattgtg	1200
gcgtttgtgg	tacctgtgta	gagcgaggga	ggctttgcac	gatgccggca	ttccggatgc	1260
caccgagtac	gaagttgagt	atacttcatt	cggcacgaag	ttatcaggcg	cgatgaagaa	1320
aatgggctgc	tatccgatac	gcatggctat	atcgacgaaa	agtaccggat	actttcgccg	1380
attgcatga	gatttggcat	gccggtgaca	tcggtctgt	acggtagcgg	actatttgtc	1440
gggtttggct	ccgctgcgtg	ctgtctatgg	aatatagacg	ggcaagacat	tcgtctgcag	1500
tatcccgaag	ttctgcgctt	tgtgtggaag	aggtgaaagt	gtttatgacg	catatcgggg	1560
gataccccgt	cggtacgaac	ctcgtatata	tcgaatgctc	gtgcagaacc	cacctcgctt	1620
tttgtctgtg	ggcatagtca	tattctcaaa	gctatgtacg	ataagagttg	gatatgctgc	1680
atctgaatcc	cggagctgca	ggtaagtatg	gttttatgct	gttcgtactc	tgatgcgctt	1740
cgtgatcgat	gggcgagata	tacggattta	caggtgatag	aattggccga	tcgatagaat	1800
attaaagatg	aaaatttcat	tctcaaagct	tgcattttct	tctccctgct	gttaggcgga	1860
tgatatcctc	ttcgtgtcgt	ggtggagcaa	ccccctcttc	taccagtggg	gttcagctcc	1920
tgctaggatc	gatacgcctg	aaattaaatt	gctcttcgcc	gagatatcat	gacgcattggc	1980
cctcagatag	aaagtgcaaa	gtgcgaaggg	ggcgcgtgta	cgacttttcc	tcctcttttg	2040
atactttggc	atcaagaaa	gggctgccga	tcttgccatc	ggcaatctgg	agaccacctt	2100
tgcaggaccc	cctacagcgg	ataccccacc	ttctcttctc	ctgacgctat	gggtgagctc	2160
ttaaaaatgc	cggtttctgat	gtgctgacta	ctgccaaaca	tcatatgccg	ataagggaaa	2220
aaaggggatt	atacgtactc	tcgatatgct	ggatgtctgg	gtatagccca	tacaggcagc	2280
tatcgagata	ttttcgatcg	ggaaaaatga	ctcctcttat	ccttgaagta	aaaggtgtac	2340
gcatagccat	acggcctata	cttatggtag	aaatggaatg	cctgtaccgg	ctcctacctg	2400
gtggatccta	tcgatacggg	catgataaag	aaggatttgg	tcgagcgga	tccttaggtg	2460
cggactaccg	catcgttcag	attcattggg	gaatagaatc	agaaaggagc	cggggccgag	2520
tcc						2523

(2) INFORMATION FOR SEQ ID NO:758

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:758

tggcccccaa	ggtaggaanc	cgaatcaa	at	ctcctattat	gaacgaaggt	ttgtctcttt	60
tccggtttgc	aaactgcaaa	caaaggcctg	acggcaaaagg	gcaggagtc	tgtttcggct		120
cctgcccttc	gagaccggac	ggatcggtgt	actacgatac	ggcggtttcg	tagctgctat		180
atataataag	gtataggaga	acgtggggga	atggatccca	tctacctcta	ctcgtctgcg		240
atagctcggt	cggaggcaca	cgcaaagcac	gcagtagcgg	aatgaaagta	ccgaaaaaac		300
catcagcagc	atctgcaaat	aagtacaccc	caatccgagc	aaagacgtcc	ccggccgaga		360
ggaaacacct	tgatgtcgca	aagatcggtg	tgaacatgac	gtaccatgcg	gctacggccg		420
caggcaggaa	agccagtgtc	acagtataat	cccctcgccg	aacatgagcg	agaatacgct		480
cctgttcgtg	atcccactac	acggcggatt	cctacttcgg	cgcgctcgctg	ctcggttcga		540
ccagaagggt	gccgacgata	ccgaggaata	tatttagcag	aaggaagaac	cgatggccag		600
atgattattg	atctgccgga	caggatcggc	caatatcctg	cccggctcttc	actgacagca		660

ttcatcgtca	gtacaggata	ggtatctcct	tggtcacggc	tttcatcctt	ttcacgaact	720
gctcttttgaa	gtccgcgtat	ccgcttcggg	agagacacgc	agatagacgg	agtaagatat	780
gagtcgtttt	gcgaaatgta	ctcctcgggtg	atgggcttta	ggctgatata	gccgtacttt	840
cggcttcggt	tttgggctga	tccggatga	gtcctcgcag	tgctgattgt	atcggatact	900
cttttcgctt	tggacgccat	cgacaacgga	tccatattgt	agttgatgct	atccgacatg	960
cctatgtagc	ggcggtcgct	tctcgtcctt	cgccattgac	tttctccaca	tagtcgaggg	1020
cattgcgcgg	agatagtagt	cccgttggag	atcgttcatg	tgaagtttgc	cgaatcggtcc	1080
gccatctctt	ccggcggaaga	accatcggct	ccatagacac	gaaataaccg	aaataatccg	1140
gcgaaacat	tcgatcctca	acgtttatga	gtgatagggtg	tccagttgaa	agctactggt	1200
acttgacgaa	gaggaataat	gaccgcccac	tgttgagagac	aagccgcttc	cactccggga	1260
tatgcagcga	tcagtcgagg	gtttgcatca	tggtttttcc	ctgatccgca	gacctctctt	1320
tccttttcca	tccttatctt	tttgtacggg	tgccagcggtg	atgcggtaca	cggttctata	1380
tcgtagttca	atgggcgtgt	ccaagcacgc	agagctgtca	cgcatagtcc	gtgacgaacc	1440
aaagcaggcc	acatacgacg	agcatctcca	ccatatccag	aggttggcac	gacgttcggc	1500
gcggatgatc	ttgataatag	atgtagcatg	ataatatctg	tatgatgagg	ttagtgggag	1560
agggattcac	gatgggtgtc	ttggatatgc	gccaggcagg	gataaaggca	ctgagcaatt	1620
gatcagcaca	cagaagacga	gagctatcag	gaaaatgacg	ggattgacat	ggctccggtt	1680
atgtcgccct	gcatcattcc	ccggctcccc	acgttaggag	ccacgaggga	aagaggggcca	1740
tgaccagata	actcaaaagc	aatcgaaagc	ccctcctatc	agactgatca	gcatattctc	1800
tgccagcact	tggggactat	atcggatcgg	acggctccga	aagagcgctc	tacgcccatt	1860
tcgccaaacg	gcgacgcata	cggctaaggg	tcatacccga	aagattgatg	gcgggatgca	1920
cagaaacact	gccaggagga	gaatgaagcg	acggcgatac	ccagagggtc	ggtatcgtca	1980
cggtgaaatt	tgcggtgcat	cgctcgtgaat	gatcggcagg	ctggccggga	aaactgatata	2040
tgaactttct	ctgcacacat	tgcacttggc	agtcaaggcc	ccgacttctt	ccttgatggc	2100
atcgaagcct	tcgggctttt	ggccagacag	attacattga	atctggagaa	taggttttct	2160
tcactctttc	ttcgtacagc	ctgaacacag	gcatccacac	atctcgtaag	cgaagtcgca	2220
gaaaggggtc	acatggcgca	ccactccgca	gacgtgtatt	tgcgcccatt	gatcagagct	2280
tgccggccga	cggcctcgct	cgagagccga	agaaccggcg	cgccaacctg	tcggtaatga	2340
ctgccacggc	gagttcgatc	gggcatccgc	ctcggtataa	tgcttgccgg	cgacgaaaga	2400
aaatcgaaca	cctgccagaa	agcctcgtcc	gtatatctcg	tcgtaacggg	acttctctgct	2460
cgccttcgcg	tacgcagaag	cgcggttcaa	ggcccggcta	ggtatggaaa	gtccctcgaa	2520
agccggttacg	gcttcgggtg	tttcgagctg	cgggga			2556

(2) INFORMATION FOR SEQ ID NO:759

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:759

agcttgcgac	tgatattgag	agccaagcgt	atcaagcagc	ttattcagat	atcctttttg	60
attgctttga	ccggatccgc	ttgaaatcga	agtacagaga	aagtaaggag	ccgttatggc	120
cacggctctc	ccgtctgtag	cgtatatttg	ccgcgaatag	gtgccagatc	caccggttcg	180
ggcgatgaa	gagttttccg	atggtagcc	acttgtcccc	ttcaacaaaa	attgtcttca	240
gaatctaccg	aataccacga	gcaagaatac	aatcatcaac	gctcccacga	tgcgtagcgg	300
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ttaggtctcg	gcgggggttc	ttcccttga	aattgagttt	cccaatcacg	ttccggatga	2040
ttaaagtgc	tgtaaaagcg	acatatctcc				2069

(2) INFORMATION FOR SEQ ID NO:760

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6432 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:760

cgttccacgg	ctacagtcgt	gtattgttcg	acgaatgtct	gtacgttacg	gctattttctc	60
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acttatgata	tgtattcttg	ctttatgtat	ttcgtgttgt	tcaaaaactg	tttgcatctc	180
gtcataagag	cctcgtaacc	ccaaggatct	ctgctatgcg	tattgcttcg	tgtggaacat	240
cgtttcgctc	acttcttcaa	gcgtatagtc	cacacatttg	ctgaggggaat	ttactgtaga	300
ggtaagttca	ctttgtcttc	tctaaaacca	cgcactttca	agcgcgacat	ggaatgtcta	360
tactgccata	atgcgtagtg	acgagagatc	ggtctttatac	ctgctcaata	tagccaatag	420
tccactgaca	atggcttgte	ctctacagga	ttcgttgctc	ttgcaggttc	atcgactaaa	480
acgagtagtt	ctttccctgt	ctggcctcat	cggcaatgga	cgaaagacac	atcattttccc	540
cccgaagag	gaaagccctt	gtctaatatc	ttgtgcatct	ccaagtgaag	catcactttt	600
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aacaattcca	gagctgtagc	caatcctcca	gataagggga	caactcgcgga	gaaagtcgct	960
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agtcggcacg	ga					6432

(2) INFORMATION FOR SEQ ID NO:761

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:761

agaccgtttg	ctttggacag	atcgagttct	gtcagcagat	tggcaaagcg	tcgaaagcag	60
tcaggccggg	acaattgcta	atatctataa	aggtagcaca	tagtcccctg	cagaagaacc	120
tctaaacaag	aatttggcca	ttttgcctag	acgatggcct	ttgtttgtct	gaactcaaca	180
tcacgaaact	cacctgatcg	agcctctccc	ccgaatcgt	acttgccggt	tccgttgagg	240
tctgccaaat	gtcgttggca	tagccatcct	cggttcttat	tttgattgta	cactcacatc	300
ggcttcaact	agctccatga	taatgcgctc	gccatcgacg	ggtcaggaac	tttctgtgct	360
gaggccgggt	gaaccgatcc	gaagaagccg	gaaggattac	aagggtgag	aatagcgggt	420
ttcttttcat	aactggttag	ttttggtttg	tgaaaaatgg	ttagtatattg	tactgatctc	480
atgttttcaa	atctcattgc	caattcggcc	ggagggtttg	tagctgccat	tatccgaggt	540
ggaagaaaaa	acgtgtcttc	cattttcatt	tcgtcgtagg	gcaacgaaga	aagcggatgg	600
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ttctgttggc	tcatggcgat	gatgcacctc	ttgggcagga	agtcactatg	tggggggaca	960
gccatggagt	ggcgccgaac	aagtgcgcgc	aacgctgggtg			1000

(2) INFORMATION FOR SEQ ID NO:762

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 755 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...755

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:762

gtgaatatct	tcgccgtact	ctttgtagta	gtgggcagct	atctgtctag	gaaagggagc	60
ataaggcgat	agcattattc	aaaacatgta	gagccatgga	acatatatac	tgtgcgtatg	120
ataatagaca	taacccaaat	aagcaccaag	acgattcggg	gaaaaaatcc	catcagatcg	180
agatgtgcaa	tgctgaaacg	atggcagtc	gccaaactgc	agcatgccat	ctattgcggg	240
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ttgtataatg	ggcaccgcta	cggtcgattt	ctcttgccaa	gccggaggga	gaaagggcag	420
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agtgaagtac	agagatcagg	agatagcaat	aatcagtatc	agagcaagat	gactgagtat	720
aggccaatct	ttaaaaganc	ctttttcntt	gctta			755

(2) INFORMATION FOR SEQ ID NO:763

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2351 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2351

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:763

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taaaaaacat	ggctcgcttc	tgtatcgctg	atccacccat	acacatccgt	tctcgcacac	180
ccctatttca	ccttcgtaat	agccaagtcc	gtaccgttca	tgctgcgccg	attctctact	240
tcatcggttt	gtaggtagct	atatgaatgt	atggaagggc	cgatccgatc	cgttggcatc	300
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gactatccat	caggtatttc	ataccgccga	catcagcttt	ttctcttggc	tggcacgccc	720
caaatgatcc	aaatctgacg	ccaacgatag	atctgtccac	cgaggtcgat	tttcacaggg	780
cacaattcga	acaggagaga	cagagcgagc	aggccgatac	attatcgcta	tacgacgcgg	840
atccttgagc	atccccagat	tgatcccgat	aggcccgggg	ataaataagt	gtaggaataa	900
ccgccgggagc	gacgatagac	gggacacgta	tcatacatgc	accgcatctt	atgcagttga	960
gcgtttttac	gtgctcctca	tttcgatgat	gtccgtcctt	ccgttggtcca	cgatgatata	1020
gtgtagctcc	caccttcatg	aggcttgccg	tagtgtgccg	tataggtggt	agagggcttc	1080
ctgtaccgga	acgcgccaga	agtcgggtga	atacccttac	ggcatccagt	cgggtaccaa	1140
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ttgctgcatc	cgctgataa	agtcttcgcg	caggcttttg	cgctgtgcac	gtgtcagata	1320
cgtgggtcgt	aattgccctt	ctccgtaccc	aacttgctcat	ggaatagatc	gctacagcct	1380
cgcttttgat	atggatagcc	ggcatcacga	tgtggctcgg	tgctcttcca	taagctggag	1440
gatacgctcg	ccgaggtccg	tttcgatcac	tttataccct	tttctataag	atattcgttc	1500
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gcgtttgatt	tcatgagcca	gttggcgag	atcttcccca	ctcggggcac	cgtatcacgc	1740
tggatgtcgc	gtttgtggcg	caccttccag	agcgtctcgt	catgccactt	gggctccgga	1800
cttattctcc	aaaagcgggc	agccgcttcg	ctatgcttcg	tactcataag	tttgctgcta	1860
aatttctact	gcatgaattg	tcttgatcgg	caatttctct	ctgtctatca	cccctgcata	1920
tgcattgaggc	acgagctgtc	cggccctgtg	atgtactccg	acctgtggat	atgtgatcca	1980
gcaccttgct	atgccccata	cagggtggatc	ctccggctcc	tccaccgagt	acataccgcc	2040
gaaaccgcag	cattcgtcat	tcgcttcggc	tcgaatacct	ctatgccctg	caccatctcc	2100
aatagccgcg	caccttggtg	tggtagcgtc	ggtgcacttc	actgggggtg	gacagagcag	2160
ttcgcgca	ccgtggcaac	tgttggtcag	gctcacctta	tgggcaatcg	ggaggggagg	2220
ctgggtgatc	tcaggtcatc	gtgcaagaac	tcgctatata	ccgaaccttg	gctgccgant	2280
tcagacatg	tcctgtcggg	ctgggatatg	atcatagttt	tctttcacga	aagcaacgca	2340
actgaccggg	g					2351

(2) INFORMATION FOR SEQ ID NO:764

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:764

taatgtcttt	tctccccagc	aggatagaga	ccctcacgga	cgcaccggcc	ctaccagcat	60
accgaaggcc	atcaggaaga	tcaggattgg	gaagggtgaag	ccaagcccga	caaggcatat	120
tcgctcacc	cgttcccgat	gaagatgggt	ctacgatggt	gtatagcgaa	ttgactgtcg	180
taccaccacc	cgcgggagag	catagtga	caacagtttg	ggtatctttt	ccgattctaa	240
tgcttgatct	gttgggatga	cataaattac	ctctttatgc	tccggatcgt	tatcatccgg	300
gagtga	gccggcagca	tatactgcag	agcttccctt	ccttacaaaa	tagaccgaaa	360
accctctcgg	actttcgggtc	ttgttcgggt	gccttcctct	tggacttgaa	ccaaggaccc	420
tctgattaac	agtcagatgc	ttaaccaact	gagctaagga	agaatagaaa	aacggcttgt	480
gacagcgctt	ctcttgggct	cgaaccaagg	accctctgat	taacagtcag	atgctctaac	540
gactgagcta	agaaagcctt	tcgttttttcg	tgatgcaaa	gtagtgcata	tcccaaacat	600
gcgaagaggtt	ccgcaaaaaa	aatacattca	gatattaaac	cttctcgcca	ccacatccgt	660
tggggcatct	catccatatt	catgacgaga	aagggtgccc	gcctccagac	ggtttaggct	720
cgtgaatttt	ccattcgatg	ctccgaaaaa	cgtggcgcgga	gaattttttc	gtattggttc	780


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cacagttttt atttcccag ccaaacgaaa atttacgcgc gtgttttcag gattacgaac      840
catgacgtgt actgaaaaag ttgacagttg ggtggatagt tcacaatggt tactaggtct      900
tctataat                                     908

```

(2) INFORMATION FOR SEQ ID NO:765

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:765

```

ttctttgccg atgggcatct gatcggacgc aaggcttcag cttgggcat aagttttttg      60
attgcgaacg tattcccttt gcccgaaaat agtaatttgt gccttgtttg ggtgggactt      120
gttctcattc gccaacggga aataattgga aacaggaata atataatggt ggaaatatcc      180
gccttcggtc aattgacgac ccggcacttt caccatagca taatacaaga aaatgactga      240
tcgagagaca gaattattaa catcagcatc gaggaggaaa tgaagaccgc ctactcgact      300
attcgatgtc ggtgatcgtc tccagagctt tgcttgatgt ccggacggat tcaagccggt      360
tcatcgccgt gtgctgtatg ccatgaacga aacggcaatg tgtacaccat cccactcgca      420
aatgcgccaa tgctgtcggc ggggtgctggg acactatcac ccgcatggcg actcttccgt      480
ttatatggcc tgggtgcgtat ggcacagccg tggagcctgc gctatccgtt ggtggacggc      540
agggcaactt cggttcgggtg gatggcgatt cgcctgctgc catgcgttta ccgagtcgcg      600
cctcagcagg attgccgggtg agatgcttca ggacataata aggaaacggt agacttccag      660
aacaatttcg atgatacacg tcaggaccta cggttctgcc gacacgcatt ccgaacctcc      720
tcataaacgg ggcttcggta ttgctgtcgg tatggctacc aatatgcctc cccacaattt      780
gtccaagcta ttgacggatg tgtggcgtag atcgaagcag atggcgacat agagtggagg      840
gcttgatgca gtatgtcaag gctccggatt tccccacagg agattcatat acggctattc      900
cggagtgaag gaagccttcg agacgggacg agccgtgtcg ttatcagaag tcgtgccgag      960
atcgcagc

```

(2) INFORMATION FOR SEQ ID NO:766

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 658 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:766

taaaggtgca	tggatgatct	ctatgcaccc	ttcgttttga	tccgatacgt	cgaactcgat	60
tgtcagtcga	gcgatcgagc	cactgacggc	taatgtgctc	gagccaatta	gctcccacgc	120
ctatatcggc	aattagcggc	acacgaattc	gggcatcacg	ccttccacgg	caacgaagat	180
gcatacgaga	agcattcgat	gcgttggaag	aggcaaatag	cttgccaaat	cgaggaaatg	240
aaaagcggtc	gtagagctta	aaatgatgcc	gatatccttc	actacataat	ctggttgcat	300
tatttggtga	atgtgcagag	cgacacgatg	tccgaaattt	gctaaaataa	tgtacctttg	360
ccgcgctgat	tattatcaaa	tagtgccgaa	cgtttgattt	tcagtgcggt	tttgtccgag	420
aggagcagcc	cagtgtccgt	ggtaaagctc	ctgatgcacc	ggccgaatcg	acagaaaaga	480
tgatcggtca	caaattacta	acaacaaaaa	aacaagcagt	ggatacttta	agcttcaagc	540
catttctgcg	aacaaaagca	actgttacga	aggaatgggt	cattgtagtg	ctgaaggaca	600
gacacttggc	cgtatgtgtg	ccaaggtggc	aaagctctgc	gcggcaaata	caagccca	658

(2) INFORMATION FOR SEQ ID NO:767

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 687 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:767

cgtctccggc	gtacatgtct	ccggtgcagt	acctttctct	ccaaggatct	ggaatagtag	60
tgccggcgag	gcagttcggt	ctcttgccac	caaagacgag	aggcgccatg	tcgtgcgtag	120
aggtggtaca	taccgaacaa	tagggctccg	actcatatcg	gcaaagtcct	gtcccggctc	180
tttgatatt	ctttccaaat	gagggatagc	agttgcaact	gttccattac	gacaggcact	240
gcaggggtat	cattcccaga	tcctctacac	agacgagcat	atccgtggag	gaaacagcgg	300
tatcagccgc	gacagtgcct	cttgcttcca	caggtcatcg	ttcgcttggt	gaagtagtgc	360
tccgacagac	gctgccaaag	tttcttttcc	tcaagctcag	atgagcatag	cgaaaagact	420
tttcgaaatg	gatgcgtgga	tgaaggcccc	gggcttgcc	gattctatta	cgaaacatac	480
ttctgtggct	cacgcatcaa	acctctgata	gtgtcctctc	ctccgacaac	ggctgtaggt	540
ctaacgctgc	tatatcggtc	tgatagaaat	tcttcgtcgc	cagcgtatat	aatccgaatc	600
gaacggacga	aggtatcgac	agcatacttc	gcttgcaagc	gtccgaaaat	ctgcttgagg	660
tcattctgcat	gaacgaagcg	gaagggg				687

(2) INFORMATION FOR SEQ ID NO:768

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2996 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:768

ccaggcgaag	tgcattggcat	ctggcgtatg	aaggagacca	aatgatgtcg	gccttttcgtg	60
gcacaggctt	tcgtcgatgg	agatcgggta	gtagtgggtg	gggttttcgta	tatcatccca	120
atgagaagaa	acgcgatctg	atgcggcgat	ggaagcggca	ctatacagca	tgcgtccgaa	180
ggccgagaaa	gagttcatcc	gtccattatc	aggaaagctc	gctggactac	actcaaataa	240
atatcgaaac	ggcttaccga	caacacacga	agattcaatg	caatggagaa	taaaagctga	300
aagtggccat	ttcccatggc	gacatcaatg	gtattgggta	tgaattctgc	ttaagacctt	360
tgccgaagcc	tcgatactgg	atctcttcac	gctgtcatat	acggatccgc	caaggtggca	420
gcctattaca	ggaagacctt	gagttggatt	tggaaagttg	gaaccaagta	tcctcggcaa	480
ccgaagcggg	gagggcagag	tgaatctggg	aaactgcata	cccgaagacg	ccaaagtggg	540
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aagccgtgaa	gcaaggcgat	gcggatgtgc	tggtgacatg	ccgatcaaca	aagcagccat	660
gccgcaggac	atctttccat	acaaagccat	acggaatacc	tgcaggccca	agccggcata	720
gagggcgaag	atgcgtgatg	atcctggcgc	aggataagct	ccgcacagct	ttggtaacga	780
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ccggccggcg	gtgcaagagg	agaagaacag	ggattgttag	tggtcggccc	ttatgccgct	1020
gacggttttg	ggcgtcggat	atggctctgc	atttcgatgg	cattctgtcc	atgtatcaga	1080
tcaggggctg	atccctttca	agactctctg	catggacaga	ggggtcattg	gacggcaggg	1140
ctttccatcg	tacgcacttc	gccggatcat	ggtacagctt	cgacatcgtc	ggcaaggcg	1200
aggcttcgcc	cgattctttc	cgcgcgccat	ctatcaggcg	atcgacattt	atcgttcgcg	1260
ggcatcgctg	cgatggctac	gcgcaatcct	ctccgaaaga	gttatttcga	gcggggcaat	1320
gacatgagaa	attgccgcaa	acagaagatg	agcattaatt	ttaataacct	atgactctat	1380
gtttaaggat	aagactatcg	tttacacatc	cgggacattc	gtatgttcca	ctacaacct	1440
ttgcgcata	tcaactatgc	gcgcagtttg	cagacatcct	tatcgttggc	gtcagcacgg	1500
acgaactggt	cgcttcataa	aggcgccgcc	cattattcct	tttatcgagc	gcttgcaaat	1560
ccttgaagcc	tgaagacacc	ggacatcgtg	attccgcagc	atacattgga	tcacacgaga	1620
tcgtcaagaa	gctgaatata	gacgctttcg	tagtggggga	cgactgaatg	gcaaatacga	1680
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ggggaaccaa	ggggatcggg	ctcgcagtag	cccgtctctt	ggcaagcaga	gatactccct	1920
cgttcttacc	tacggacatg	atcaggagac	ggcgcgagca	tgccggccga	attggcagag	1980
agcgctccat	ccgtagagct	gctgcaagcg	atgctaccga	tgcgaaaggt	atcgacctga	2040
tagcgggaagc	ccttgagcga	gggatattac	tctgcaagct	cttatcatga	atgccggcat	2100
cacatgcgca	cgccttttca	ggagatgact	atcgacgaat	ggcagcgcgt	attctttgcc	2160
atgtccattt	ccccaccttc	ctgatccaac	gccttctgcc	gcgtacgagc	gcaacaacgg	2220
atgtatcatc	tttaccggat	cgctcatggg	aataaacccg	acggcatggc	tctgccttat	2280
ggagtgaagc	aatccgctgt	acagctctga	cccgcgaatc	ggtgaagcat	ctggagcctt	2340
atggcatccg	aggaatgccg	tgccaccggg	atttgtagat	acggaatggc	agaagaacaa	2400
acggccgaaa	tacgccgaaa	tatcgagaat	aaggttgctt	tgcatcgctt	gcgacaccgg	2460
atgaagtagc	cgaagctttt	ttattttttg	tcgccaaacg	tattgcaatg	gtgaggtcct	2520
gactcttgat	ggaggctaca	gcttcgcgca	acagctcaga	catgaacgaa	aacgacaagg	2580
agtaccaagc	ctctctcaat	cactggagac	ggaaaatata	attgaccgga	aattctaccg	2640
tccgatgggt	tttactttgc	caagctttct	agtcgtacaa	gggtaacgcc	caataggtta	2700
cgatcctgtc	catctttgtc	ggattaggcg	gcgggctgtg	cttctgcata	ctccttatga	2760
tctccgttgg	gctgtggccg	gtattctatg	tatgtagtgg	ctaataatcat	ggactgcata	2820
gacggacagc	tggtctgctc	gacgggatca	agagtggagt	cgggcgtatt	ctcgacggca	2880
ttgccggaga	ctttggttcg	cctgcatact	tatctgcttc	atcattcgct	tgacagcaga	2940
gtatcccgat	gccttaagtt	cgatgaccac	cggatttcct	gaattgccgc	ggtcctt	2996

(2) INFORMATION FOR SEQ ID NO:769

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 338 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:769

cccaacaaga	actcggtaaa	aattatcggg	gacaatacga	ataaatactt	caggcttact	60
tcgcttacga	ctcgaagtaa	atcgggtgga	ttcacctgtc	gcaccttcgt	ttcggcgata	120
cgccatacgc	ttctacctac	cttgtgggac	accggacttc	gtggcttgcc	acgtgcctgc	180
ctacttgctg	atgtacacgt	gctgaaagg	ctgaagaaaa	aaggaaactt	cctgctcaat	240
tcgattgggc	tccggaagat	atagaacagc	atctgcccac	caaggtaaag	cgtttttggc	300
taagaacaac	atccgattct	acacgattaa	cgctactg			338

(2) INFORMATION FOR SEQ ID NO:770

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 877 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...877

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:770

gccgaaagga	agacctatcg	gcagcggcat	atcggcgata	accagattgc	cggacctgtg	60
acgatgtctt	tctccggatg	cacctttgcc	ttggaaagtt	gatatagaag	tgaggatgat	120
cgatgattgtc	gcaggtcgta	taacgcctcc	ttgcataaac	atgatattgt	cgggcatctt	180
cttgggtctta	ccggcatcag	atagccttcg	cccttgctgc	gtgatcactc	cgctgataat	240
cccctctccg	tgcggaagtt	gtaggtaaa	ttcttggctt	cgaacgactg	ctctcactct	300
tgaaaacagg	aaaggccatc	ggataaccgg	ccgtatcgag	gactagcgag	tataaaccgt	360
actgctgtcg	gtattgagat	acatgaagtt	tgctccaagc	gactcttttg	atagctcaca	420
tagctcttgc	cgaaaagata	gcacgattct	gtccgagcaa	aacgatggaa	tcggcagctt	480
cgtactccac	atatcttcca	attcgaattc	atcgtcatac	acgctatctt	gccgcatcgt	540
ccggtggaat	cggcaggaag	ggaatctcga	aaagcactgt	caggaatagt	tttgcgagag	600
gcaccgtgtc	tttcgctgta	gaatcagaca	gcgcagctgc	cgacgggtgg	gcaatccgac	660
tgctccggcc	ataggacgtt	ccgcaggacc	aaagtagcac	agagcaatcc	gacaaggatt	720
acgggtaata	accataaagt	ctggaacaga	gatcggatac	tctcattcgg	attcattcat	780
actccagggtg	agcaaaggta	aaaaagaagt	tgtaatacac	gatgaggttg	tacggctgcc	840
ccggggccga	cgcattaaat	tggtttgcgg	cttcatt			877

(2) INFORMATION FOR SEQ ID NO:771

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 803 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...803

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:771

tcccagtggc	aaatcgtcgt	ggtttgccat	cttcgtcttg	gcgtgctcgt	tgagtgtacc	60
gaagaaaaga	ttctgcagta	tggcattgta	ataattccct	cggtgggtgct	attgggatcg	120
aaatccttga	ggatgggtctt	gaggaagcaa	tatcgaaaag	atgctgagga	accagctcct	180
tttgcttgat	gaaccaacaa	acataatacg	cgtaattagg	cggattatct	tcgtttctag	240
atctttctat	catcttcact	tgtactagta	tcattaggga	aactgatatc	ggcccgggag	300
atatggccca	ctggtaccac	tcgaagagat	ccttgtagaa	ctgttcgtca	gtgcctcgac	360
ggagaaaagca	tcctcaatat	ctttgagttc	gagtcctggc	gttgtttctt	gtcgattaac	420
ttctggaagt	tgtctgctgc	ttacgacagt	gctgcccagg	gccgagcaag	aaggtgaaac	480
gcttgctgct	gtaatgtcgg	actggctcct	ccccttgtagg	cagaaggtaa	accgccattc	540
cacaaaggat	tgtcctcgta	gtggaatatc	ataaaagcac	tcgaatagtg	tcattgatacg	600
cctgataata	ttctggatgc	caaccttatt	gcgagcctct	tgatctggct	agataccgtg	660
atgtcaaaga	tgttgatagg	attgaatcca	tatcgatatt	gccgatatgc	tgatctctag	720
gatgcccggt	gcttggtcgc	tggtcgtagg	tcgggtacat	ctctaggata	gatcaccatg	780
accacctcaa	atagctctga	cca				803

(2) INFORMATION FOR SEQ ID NO:772

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 540 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:772

tcttttggttt	ttcatttttca	tcaaaattat	tttttggtgc	atttgcataa	tttcttttga	60
ttcatgcgct	gcaaaggtag	cagcaataag	aagaaaagga	ataaattcag	tataaacgaa	120
ttgaagccga	acaggaggaa	tagacaaggc	cgaatcttcg	gatttctttg	ctttcccgat	180
attggaagta	tccgtacttc	gtgctcggct	gtggccgaca	ggcccatgca	gcgaattaag	240
aaacgttgta	ggctgtttct	tgtccctgc	acgatgctgg	aagccgttgt	cacggacaat	300
cactccgtgc	atgatgcagg	aagccgttgt	cacgtgacaa	tcattccgtgc	acgatgcagg	360
aagccgtcgt	cacgtgacaa	tcacgtcctg	cagatgcagg	aaacgattgt	cagccgacaa	420
tcgtttcgcg	cacggctggt	tgacctttcg	tcgcctgaca	atgcttatat	aaaagctggt	480
tcagggggca	tgtcacttga	cactgctacc	aataacagat	taataatcaa	tcaaatacac	540

(2) INFORMATION FOR SEQ ID NO:773

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 777 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...777
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:773

```

ggaaagacta ctttcacgct cggattgcta cgattgcttc gaaggcgcgt ctcaaagtgc      60
agcctttcaa atgcggtccc gactatatcg atcctaagat caccgccttg catgcggaac      120
ggaaacggtg aatctggatg ctttcatatg agtcgggagc atatcgcccg actctatgat      180
cgctacggca gtgaagcgat gtttctattg tggaggagat gatgggcttc ttcgacgggt      240
acgacgtatg acgggtagca gtgccctttt ggccgaaaat ctgcgcattc ccgtttgctt      300
ctgatccatg caggcagcac ggcctattcc gtggctccga tacgtatggc ttcaaact      360
tccgcccggg tgtggctccg gtgggtgtcg tttcaataag gttggctccg cttcgatta      420
tcgctatctg gaggaagcag cgcggatgcc ggtgtggcca gcctcggtta cttgccgaag      480
atgaaagatt ggaaataccg tcgcggcatt tgggcttgtc tgtggaggat ttagtccgta      540
tgattatttg ccggacaggg tggcagatgc catcgagaag tatgtggagt ggagagattg      600
cttgggtctga tggcctccga tgtcgatccg gttatcgaga agagagcttt acggagtctt      660
ctttgcacgg gaggaaatgc attgcgtggc ggatgacgaa gcatttaact tcacctatcg      720
ggagaatatt cgtcgctcga aagccgggaa gggtttgttc gattcagtc tttgcgg      777

```

(2) INFORMATION FOR SEQ ID NO:774

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 893 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...893
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:774

```

gcgcagtagc cgaagcatcc gattcttctg cctgcaacaa tatatacttg ccacgccatc      60
gaagctgaga gcatacctcg actgccccaa agcttttgtt ttatggtcag tagttcgtct      120
gtaccatata ggatatcctc gatcaactct tccgggcaaa tcgcgcaaag gcgttttgat      180
cgtcacatcg tacttccgca caatgcctct atttgccaaa agaaaagatt gtttttgtat      240
ttgccaatgg ctcaatgcc cttcgtata tactcttctc acgagatgga atgacttgtc      300
catatccggc agattcactt cgcccaagcc cttacagcgc ggaaatagcc atgaggggaa      360
ttgaaactga aattgtgcgg agccggatcg cttacgaaat tcccgtatca ggacacatca      420

```

tcatccgact	aaaatgtccc	attcgttttt	ttccgaatcc	aacaccatca	caagcccttc	480
gccttcacgc	tagccagtgc	caagctctcc	gctatacggt	tgctttgatt	cgatgctacc	540
acagcttgtc	gatctgcact	tcgacgtcat	gcattttata	gcgatcaact	tcatcccatg	600
caaaatctcg	cgaatctcac	cattcacgcg	tacgtgcat	agcctttctt	acgaagcctt	660
tcgaatagct	ccttataatg	ccccttcgcg	agcgaaccac	cggggctaac	aaagctatct	720
tacggccatc	atactttcca	aaatgagggtg	gaagatttgc	tcctcggtgt	atttcaccat	780
cttcttcctc	cggnataaga	ataagcctna	gcaacacgag	catagagcaa	acgaagaagt	840
cgtacacctc	tgtaacggta	ccgacagtcg	atctcggtt	ccattgggtg	tct	893

(2) INFORMATION FOR SEQ ID NO:775

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 341 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...341
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:775

gatagtgcag	acaaggtgac	ggtggagctc	gtggacaagg	cgaagggtcac	tatatgcctc	60
gtatgaaggt	caaaactgct	ctgaagggcg	tccgtatgag	cgtgccgagc	gtgtccttga	120
tgtgccttac	gcctcttcgg	tcaagccaat	agaacaacag	cggtggatct	tcatcctcgg	180
acaacaacga	acacacgggc	tgtaaacaaa	gcattttaata	gtgacaacga	taaatatctg	240
aacgtcttat	tcgacaatac	atccctaaag	attcttcggt	catcgatata	acgacaaaaca	300
gatctccatt	atgagacctt	tgaaaaataa	taagtggagg	a		341

(2) INFORMATION FOR SEQ ID NO:776

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1192 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1192
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:776

ttgcacaata	agcaggcact	ttatccattt	atccattcat	tttattgtgg	tcggccgatt	60
gttttgtgtg	tttatgggtat	gatcaatgac	acaaaacgtg	gcacgacaag	gaaaatcatc	120
cgacgaagag	gtttcgttca	gggacgtatg	tcagcgaatc	gatacaggaa	agcacggaat	180
gtattttcga	accaagcgat	atgcttatcg	attggcaacg	tattcgggca	ctgctctcta	240

ttcactggca	gccatacacc	tactcattga	tcttttccttg	agatacaaaag	aatgacttcc	300
acgagaggat	actatgatct	cacatgagag	gatactatgg	tctatatgag	aggatactat	360
ggtctcaaat	gagaggatac	tatggtctcc	tagagaggat	actatagtct	cacatgagag	420
gatactatgg	tctcatatga	gggatactat	ggtctcacat	gagaggatac	tatggtctca	480
tatgagagga	actatggtct	cacatgagag	gatactatgg	tctcatatga	gaggatactt	540
ggtctattga	tggaagatgc	tatctgctct	ctgccggatg	gcagggttcgg	gagttggagg	600
tccgtgcgag	ctgtaaaccg	atagatgaga	ctgtcgccgg	cattttccgg	agatttcatt	660
gtcaattgac	tgattttcag	tgtctgacag	atataagaga	cctttgcacg	ccaattgccg	720
tgcaaaggtc	ttcttaattt	atgcagaacg	ccggggataa	ttatgtcctc	atccgtagga	780
taagcataac	cacccttgag	gagctcgtgc	aagtagctcc	gcaaggggga	tttcaactac	840
tttcaactcc	tactgccacc	ttttccctcc	acctccttat	tttcaaaggt	ctctatagac	900
cgataatcag	agtctcgcca	caaagagact	gaaagacaaa	agcctatcca	tgtatgccct	960
atcggcaaa	catgaacagg	ttttttgtgg	tcaatcctcg	gccaccgtta	tatgagattt	1020
atattcacac	ttttatctac	ccgcaaaaaa	gatatatttt	tgccggtgaa	ataactcttc	1080
ccccttctta	tccttttcag	ctatgcgttg	gttcatactt	tgtctcccaa	atatgtagac	1140
ttcaagggcc	gtgcccgctc	caaagagttc	tggctctcac	cctgttttat	ct	1192

(2) INFORMATION FOR SEQ ID NO:777

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3098 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...3098
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:777

cgacaggtag	gcgatctgtc	gcaaagcatc	ggattggggg	cgggatataa	cttgagtagg	60
ttcgatagaa	aacgaattga	tgctgctcca	ctcagcgaaa	agattcgtcc	gacatcgggg	120
taaggggata	gtcctcttca	tccggttggg	ttgataagag	agcatggcac	gagctatctc	180
gcgagcctga	taagtttgcg	cacgagaata	gcaatatccg	aaggagcata	ccctcttttt	240
tgacgccgat	gataaaacgg	ggaagatcct	gcaagatctg	ctcctcccac	gaaaattggc	300
ttccgcttct	tctgatgatg	ccggcgacgg	aagataaatg	cagcgcttcc	atgccggtct	360
acttttagccg	gtggcacaa	ctgctccaca	tcgcataggt	ctgcatgaat	gtacggttga	420
tctcctccgg	caacttagga	tgggcattgc	catcgctctg	gcttcgcgag	tcatagcctc	480
acagaggatt	gtggcagatg	cttgtagagg	gagttgttga	actcgattat	ttcgggagtc	540
ttcgccaatt	atatggtaga	ttgacctct	ccgatgtttc	ggcaaaatcc	gactgacgac	600
ctctgtgagc	agacgcgggt	cggcattgcg	gaagcggata	tactctgttt	ggcatcgccg	660
acgaggagg	tgtacttgcc	gtgagcagac	tctcggacag	caggggcttg	aagttttcgt	720
actgtaagcg	gctggatctt	gaaattcatc	gatcatttcg	tgttcgatgc	gtaccccgat	780
tttgcataga	cgaaaggggt	ctcgctcccc	tcgatgatcc	tgtgcaatag	agaggagcat	840
cggaaatgag	cattttgttc	tcttcttgtc	tgattccttc	gattgtcgcc	aaaggtcgga	900
gatgatacca	agccggttca	gaaagggaa	cactgcttgg	ccgtggaata	ctcttgccat	960
tccctgccga	gcataagtgt	gccatttcgg	tcagacactc	tttgagaccg	gattggtaag	1020
ccgagaggag	gctgcctggg	tgggtggcagg	agtggttttg	gcgtagagtg	tggctctccga	1080
tcgccttctg	ccatcgccat	aaaggtcttt	gtgggaggct	tgacttccct	cctttgagca	1140
ccttggcaaa	ctctaagata	cctccttttg	tacccttttg	aaatcgtaga	agctgattcc	1200
ggctgtggcg	acgatttctt	ccgccgacgt	gcaatagaca	gacgtcgctg	ttcgaagcct	1260
tccatcagct	tgttatttcg	gtttgatagc	gatgaatggc	agcttttggtc	ggtagtttgc	1320
cttctcggat	agcaggagta	gctgttcttt	gaaaagctca	tcacccaagc	tgctatctcc	1380
ctgcggtagt	tatgtccacg	ccccctcttc	atcaggctct	cgccaaacgc	ctgatccaat	1440
tctcgacgtc	ggaggtatct	ttttctccca	gctgtgcagc	aagacggacg	acagcctgtt	1500
cgagcacggc	cttctgctca	tctcgatccg	aaaaccaccc	ggcagtccca	attcatgaga	1560
gaaggcacca	ttacttcctg	aaagaaggag	tcaatggtct	tgactcgcaa	agaagaaagt	1620

cgtttagtat	ttcggtcagg	acttcctgtg	ctctgacttg	tagctgtcgg	tagtcagagc	1680
caactcctgc	atcagctcct	cggcgaaagg	ggacgtccgc	ccacagccag	actgtacagc	1740
tcttcgagaa	tacgctcctt	cattcggcag	tggctttgtt	cgtgaacgtg	acagcctgta	1800
tataacggaa	agcccgcgcg	tacgcagggc	taaacgaaga	tattcgccgg	taagtgtatg	1860
agcttggcgg	aaccgcgcga	agctgtataa	atgcggagtt	gcttggagcg	ttcatttggtt	1920
tttcttgtgt	ccggggggcaa	gacgataagt	ccggtcatag	ggaagagagc	cagctcgcgc	1980
ggattcttct	cgaagcgagc	gatagtctcg	gcgggatcgg	atcgccgata	tagacatcga	2040
aaatatgccc	tcgcttatga	atagctcggc	agggatgcgc	ggagtccgaa	tagcccagct	2100
cagccatcga	ggaagtgaaa	ataccaggaa	ttgcggccac	tgaagaaaaat	cggataacgg	2160
gcacctgact	gacgagtatc	atcttggcac	aactggcttg	ccattgctgt	ccatcacccg	2220
attgcgattg	cctttataga	cggatatctc	tccgcgggga	agaagccgac	cggctgaccg	2280
ttttgaagac	gggttcagtag	ctcttcactc	cggatacatt	gtgcttgctg	tcaagtccct	2340
cggccattcc	ttgagtggag	ccaccgggat	gaagctgtcg	cgcaggcagc	tgatcatgga	2400
cgaaaaccat	tgaccaatac	gctataatcg	ggacgtaccg	atccgataat	tcgatcaaca	2460
taatgccatc	cagagagccg	aacgggtgat	tggataccgt	gtaaaggcac	cgcccttgcg	2520
catctcttcc	aaatgctctg	ccccgtgcgc	cggtagcaga	cattgatggc	ggggtcagtc	2580
agtgcagcat	gggcaaactc	gctccacgca	gattgatatg	acgggcatgg	acggcggtta	2640
tgtccgtatc	ttgagggctt	tcagcaaccg	gcgcgtcagt	cgctcgctccc	ctcccgtacg	2700
ggaaaaagac	gaagtacatc	ttcttcggta	agaacttcgg	gacggagtct	gacatgagcg	2760
atcgggtatt	aaggatcttc	gagttgcctg	agctatgatt	accgcctctc	tttcagggtga	2820
tgtctgcaca	tggcctcgtg	tctctgatac	cgaggacgag	cactgtattc	agaatcagta	2880
tttcgaacac	gaatagagcc	aaatatgacc	gctcaagacg	ataagaaaaa	gaggaatggt	2940
cggccggttg	acgtaaggaa	gtccacgata	ttcatgattc	ggcggctatc	ttacgcagat	3000
gctgccgaag	cggttcgggg	atgggtattt	gcggataacg	gcctccaatt	ggtcgagaag	3060
cctttgcagc	cgggggtgtcg	cacgttctgt	atcaacgt			3098

(2) INFORMATION FOR SEQ ID NO:778

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 681 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...681

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:778

tatggtgcag	gccggcgtgc	tggaagagaa	gaaaaaccgg	atcatggaat	aatggtgtcc	60
tccacacggc	cgttcaacct	gatgatgggc	aaaatcatgg	tatcggtctc	gtaggcctta	120
cgcagctcat	ctgntgggga	gtgctcaggn	actgctgctg	acggtagcac	agatcgctt	180
cctcggcaat	ctgtacgccc	agaggccctg	agtcggatgc	aggcttccga	cataacgggc	240
atggctcgtc	catgaatgca	gaggacttcg	ccgagatgaa	ggaagtgatg	aacacatcgg	300
gggcatcaac	ttcggagagc	tgttcgtgat	gtttctcatc	ttctcatcgg	cggctacctg	360
ctctactcct	caatcttcgc	cgttatccga	tcatggatc	gaacgacgaa	gacaccagcc	420
agttcatgat	gcctgtgatg	acctcctgat	gttcggcttc	tatgccgcct	acggcagcat	480
gaacaatccc	aaggatcgct	cgcattctgg	tgttcgtgta	tccttttcac	ttcccccttg	540
tgatgatggt	gcggttgccc	tacgacgttc	cgctgtggca	ggagttgcaa	gcacggcct	600
gctgtacgga	tgcttcgtat	tgaagaggtg	gatcgggcga	agatttaccg	cgtaggcgtg	660
ctcatgtacg	gaagaaagcc	a				681

(2) INFORMATION FOR SEQ ID NO:779

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:779

tcgttcctgt	cttaccgat	ttcaatgcag	ccgatgcagc	aagtatagta	cgcattccga	60
tgccaagtat	ctcttcgat	cggacaaaat	atgggagaga	tggatccgtc	tcagctcctt	120
ctcctgtgcy	gagccgtctc	tatccgtatt	atacgggtctt	cctggatcgt	acggagggtg	180
gcttgctcag	ccaggagtag	aaggattgag	tcgctctttc	tccgaacact	acccttcagg	240
cttcaggcag	aggatattcg	ctatgccgag	gtgtcgaacg	acgatctcat	cctgtgaact	300
atacctccgg	tacgaccgga	ttcagtaagg	gggttatgct	tcggccaaca	atctggccgg	360
caatgtaacc	tacgttaagg	atagagacat	tagttccgag	gcgagacgat	cctttgcttc	420
cttcattg	cccatactta	tgctgtgcgt	tcaacttcct	tacgccattg	actatagggtg	480
tgcattgtgta	atcttgggca	aaatcccctc	tcctctcact	ctgatcaaag	cctttgcagt	540
gtacgcccct	catttgtcat	catggtgcct	ctcatcatag	agaaattgat	cacaaggcaa	600
tagctccgaa	aatcaagaca	ccgttaatca	aattcctcta	agacttctctg	tgctgaaaaa	660
ggtgataca						669

(2) INFORMATION FOR SEQ ID NO:780

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 652 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...652

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:780

gaaaaatgct	gtaaactgaa	ataaacttac	catatcgttt	ttttataagc	agaatgcctt	60
ctgccgga	ataacgcgg	ttccctattt	tgaagacgt	aatttcccgt	ttcttcccca	120
cctcaaagct	gttttgaaat	gtattcgaaa	atcctcgcta	catcaaaagc	atcgtaatag	180
atttgttctt	ccttttcaaa	tttttctctg	gcattcatagt	ttcagggttg	aaagattatt	240
cgtttttgtt	caataattcc	attgtttcgc	ataaactga	tataactctt	ggcctacggg	300
ccttgacgtc	gaccgtttgc	atgattcttt	cgaccagttc	gtttaagata	aatgctcttg	360
ggcgtgaaag	acttcttttg	cgatttgtcc	cattccgtaa	gtttccgttt	ttctttgtct	420
tccggagatt	tctctccccg	gaaacgtgca	tttcttttcc	cctgtcccat	ccgaacagca	480
tcaaaggtag	tccaacgggc	ttccatccct	tactttaagt	gcttttacga	ccgacaaagc	540
ggattctcat	ctttctctat	ggagaggatg	gccgccgact	tgcgctgagt	tccgaaccga	600
tatgccacg	cagtttaate	cgttcggaca	aaatggatac	acagataata	ca	652

(2) INFORMATION FOR SEQ ID NO:781

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 972 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...972

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:781

tgatggaaaa	gtaagatttt	tcatagttaa	ggttttggtt	aatttgggag	gagtgagtcg	60
tgagactcgc	tccttttatg	ttctgatact	cttgtctacg	tctcttgtct	gaatttatcg	120
ttatttttcc	ctctatatga	aagagttcag	tacttttcgcg	ggcaacaaag	ttaatcgatt	180
tcaacaacaa	ccaattagca	ataataatac	gtactatggc	tctaagattt	atcactgcag	240
aagaacagcg	gagtttgtgc	atcacacga	caatgtcggc	tttagcgggt	ttaccctgca	300
ggcaacccta	aggtagtacc	tgcggaata	gccaaagcag	ctatgcagcg	catgaaaaag	360
gcaatccctt	caagatcggg	atgttcaccg	gtccagtacc	gggtgctcgg	tggacggtgt	420
cttggcacag	gccgatgctg	taagtttcgt	actccatata	agtccaataa	ggatctgcgc	480
aatcttatca	caatggcagc	acttcctatt	tcatcttcca	tctctctact	ttggctcaga	540
tctgcgctaf	ggcttttacg	gcaaggtgga	tgtggccatc	atagaggtgc	agacgttacc	600
gaagacggta	agatcctgcc	tactacaggt	gtaggtacct	gcctactatt	tgccgtctgg	660
cagaccgaat	catcgtggag	cttaacacaa	gcaccccaaa	gaaatcatgg	gtatgcacga	720
cttgtgcgaa	cctctgatcc	gcctgcccg	cgcgagctgc	ctgtctatac	tccttcggat	780
cgtacggcaa	gccttatgta	caggtggatc	cggccaagat	agtcggtgta	gtggtaacgag	840
cgaacctaat	gacgagagcg	attttgcgcc	ccttgacctt	gtacgcaggc	tattggggac	900
aatgtggctg	ctttcctcgt	gagcgaaatg	aagccgggac	aatacccaaa	gatttttctt	960
ccctgcaaag	cg					972

(2) INFORMATION FOR SEQ ID NO:782

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5243 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5243

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:782

ggggaatctg	tcggaatagt	gcctgatttt	cggccagact	gttttcgaat	attgttcttt	60
gaagagaaa	actcctacag	gattggcgat	atttttctca	cggcctcttt	ctgcgcgatg	120

gtgtattccc	gttccatctg	atccatttct	cctctgctag	ctcttccgtg	aggggtggaat	180
cgctgtaaat	tccattatct	tggtcataat	tccggccatt	ttgctgcgta	tctcttgata	240
gatgtgttcg	tccgggtacc	ggtgacggat	tccgttccgc	tcttcatctt	tacccgatgt	300
gtccgttctc	aagaaagaac	ggaatgctga	atacatcggt	agcgtcatac	aggagaggta	360
gcgagcgacg	gtcgaatcct	gtctgccttt	gagctgaatg	tgccgttgcg	gatgatggcc	420
gaatcaagac	gggtgacttc	ctgttttcga	tagattcgag	gaatacggta	tcccatcgcg	480
cggcatactc	acggtgccaa	cgatcttgta	tccggatttt	cctttgtcag	agcatgaggg	540
gacagcaggg	tgatagccgt	ggccgctatt	gctatataag	tcagcttctt	gaagctgcga	600
gaagatttat	tccgttccatt	ggttggtatt	gtttttgatt	tcacactggg	ggcaaagtta	660
ttgttttggg	cctaaagtgcg	gtatgcaccg	aaagagccgc	tgccgatccg	agtatctgat	720
tctctcttct	ctctgtgatt	cgggaaagt	atgcacaaac	caattccggg	gtcagcacct	780
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gcagtggccc	ccacgaatac	ccatcccaca	ggaaagcggc	aaaggagacg	atcggtagca	1020
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gaaagcaaaag	cggccgggaa	cagcagatag	agcaaggtgg	ccatgaggag	acgaccgtcc	1140
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gccgtctctg	attggcaaa	tcctgcccgt	gatataatcg	aatcgttcga	aatcctcata	2340
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cagatgttgc	cgagacatac	gaataggatt	tatgtggctt	cataagcggg	ttatcgaagc	2580
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ttcatcccg	cggccttcg	cggaaaaaca	gcaggactat	caggctataa	aaaaaggaga	4260
tagggtgctc	aacgatacca	gcgtatccat	tgaaaatacg	ccgtggcgca	gtgcttgagt	4320
gccgatcgg	ggaaagtcct	tcctgcccc	gtgtatccgg	gaaggctatg	agcatcatca	4380
ggtagggcat	catctggaaa	tgcggcatta	catcagaagc	atcagcagga	tggcggacga	4440
ccaagctatg	atcgtatcga	cttcatccgt	ctcagttctg	ctgcttccat	ggcatcgcg	4500
cggcgaagt	ctctgcctcc	gaatcctcca	ctatcaggtc	gaatcctatg	ctgcggaagc	4560
tttgcgaga	tcctctgccg	aagttaacct	ttcgccacc	gatacaagag	tatatctctg	4620
gcgagttgga	cgttcgcatc	gctaatacct	tctacttgga	ggcagcctgc	tctacgctat	4680
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ggggactatc	gggtataagg	attgggcttg	tcagagctta	cactcgaatc	cggcgaggcg	4800
taagccttca	ttattgcctc	cggtgagggt	gtctccggag	cataatccac	ttaagactat	4860
gggaatccag	agaagcgaat	gccgtttgta	cgccttgta	ccgagagctg	ctttctctac	4920
acttgacga	caaccgccac	acatcatgct	tctacggaaa	aggtcgttgt	tttcatcttg	4980
acgagtagtt	ttttcttaga	tcctttgttt	ttgactttgg	cttgtagata	gctgatctac	5040
ggcaagcctc	gttcggacta	ctgtaaggta	tgcataccgg	actcctgcat	cgtcccgcact	5100
gtagtctctc	tctattatat	ataaacgaaa	caaatcag	agtcgatgg	tcgccggact	5160
gcggatagtg	gtcgagatga	aaatgcgaag	tggccggaaa	aaacttggtt	catgtccctg	5220
aaaatgccga	gcgtaaaatt	ttt				5243

(2) INFORMATION FOR SEQ ID NO:783

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:783

ggacaacatc	gtcaatacga	tcaatagtct	gcgcgatacg	attgctattc	gttcgtcatc	60
gttattcttg	tggttctggt	tttcctcgga	cgatggcggc	cacatttata	atcggtctga	120
cgatccctat	ttcactgggt	gcctccttat	ctacctgatg	gctacaggca	atacgttgaa	180
tatcatttct	ctcagccctt	ctctatcgct	atcggtatgg	tagtgggacg	atgccattgt	240
agtgccgaaa	acgtaacgac	acatattgaa	cggggcagct	atcccaagca	ggctccatac	300
acggcacgaa	cgaagtgggg	atctccgtta	tagcttccac	gctacgatgc	tggctgtatt	360
cctcccattg	acgatgattc	aggggcttac	ggtatccttt	tccgtcagtt	gggttgatc	420
gtgagtatta	tcatgattat	cctacggtag	ctgctctcag	cctgacgccg	atgctctggt	480
cgcagttgct	cagcgcgaca	naaagcaagg	acggctgcaa	caaaagctct	ttgtcccgc	540
gaacgctttc	ttgattctgt	agaatcgagc	atatgagccg	tttcctgatt	gggactgtga	600
gacacagaac	cggtta					616

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 657 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...657

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

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gggcaaaaac tcctcgaaca actgatcttc acctttggga gtagggccga aataatcaaa      60
ggagttcggg cgatcatgat caatacggaa tccacctctc gactatggcg tagttgtgct      120
tacgctgcac caagtcctta ggactcgggc catattgtcg cgcaagtagt cgaagccgaa      180
ttcgttattg gtgccaatgt aatatctgca ttataggcct tgcggcgggc atccgaattg      240
ggctgtgctt atctatgcaa tccacgggta aaccatggaa catatacagt ggcccatcca      300
ttccgagtca cgtttagaaa ggtagtcatt gaccgtcact acagcacgcc gttaccagtc      360
agagcattga ggaatacggg tagggtagct acaatgtctt tccctcaccg gtagccattt      420
cggcaatttt tcctttgtgt agactgtacc accgatgagc tgaacatcat agtgaatcat      480
gtcccacaag ttctattgcc tcctgccacc cagtggtttt ggtagacggc ggtatctcct      540
cgatcgagac gaaatcatgg ttgattgcga gatcacgac aagatcaggg ctttgactcg      600
aatagttcgt ttgggcgaat ctgcgacagt atctttgtaa tagcaaagct tcgggag      657

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(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1089 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

```

ggacactaat ggtgaaaata gcgaattgtc ggtttgctgt tgttataaaa acaatatctt      60
tgttcccatc gtagtggtcc ctgctcgtct cgaacaagtg agtgggggtg aagaggggaat      120
cgggtgagaa tcccagagcag tcccgcctctg taagctttta ccgccgtgtc ggttttgaca      180
tgcggactct tgtcgcttcc aaatgatgcc actgttcatt ctccactatt agagggtggag      240
ctgaaggga ggcgcgacaa acagaaaaga gatgaagtaa gccagaatac ctgctctacg      300
agttgcctat aaagtatgga gagaagacct cgaggaaaagg agttccccgg cactaagaga      360
atagatctca ggaagtattt ttttacaata actattacaa tggaagaggt aatccttcgc      420
atcgtaaagc gtgatgggtca ttgcagtcgt tcgatccgga aaaaatccgt caggcgataa      480
tcaaggctta cgcgcaggag gtgtgcacga agaagctgca cgtatcgaca atattgtccg      540
tctgtaaccg attttgctcg tcagagcggg gagcttggtc ccgtggaaaa atacaggatc      600
gtgtcgagga ggaactgatg cgtttgaatc ctttcatgcc aaaaaatata ttatctatcg      660
agagtggcgc accgtagagc gtgacagcgt acatccatga agcatacgt ggacggcatc      720
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caggcaaatt atgacttttg cttcggaagt aaccaaggac tatgccagca aattctgctt      840
tcgctacgct atagcagagc acacagggca ggagatatac atttcatgat ttggactatt      900
atccgaccaa aacgactaca tgtgtccagt agatatagca gacctctacg aacggggggt      960
ccgtaccaaa aacggcagca ccgtacaccg cagaatatcc atagctatgc aacgctggct      1020
accatcatat ccagaccaat cagaacgaac agcatggcgg acangctatc ccggccttat      1080
ttcttcatg                                     1089

```

(2) INFORMATION FOR SEQ ID NO:786

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2897

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

tgcgatttct	tgtatctgcc	cggtggttat	ccggagtttt	acctgccgga	ttgagtgcc	60
acgaatccat	gaagcggtcg	gtacggggact	atatcgagcg	ggaggttatg	ctctggccga	120
gtgtggaggt	atgatgtacc	tttgcgaaag	atacggggca	tggacggacg	ggactatccc	180
atgtgtggcg	tattgctgag	acggctacga	tggaaggaaat	gcgcctgcac	ctcggctaca	240
ggcgatggta	tacaagggga	aagagctacg	aggacatgaa	ttccactact	cttcactatc	300
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tataccgata	caagaatctc	ttggccggat	atcgcatctc	tactgggggtg	agcatgacga	420
tctgtggatg	tggttcgact	gtggaagcga	aacgatgtaa	tctatgatata	atacgaagac	480
aggagacaaa	gaaccaccgg	catattcggg	ggggagcgtg	tgccgaaaga	tgatgtacgg	540
tggaagccta	cggcacgatg	gatgagctga	atgctgccat	cggcatgacc	ggacattcct	600
gccggaggag	gatgagcgtc	agaccgtgct	gtacgatttc	agatgcggat	gatggcagcg	660
atgagtatag	tggccactcc	tgccggaagc	gtgagcagaa	tcccaatcat	ttccccgaag	720
aagcagcagc	caactcgagg	cttttatcga	caggcttttg	gccgaaacaa	ccgacaacgg	780
ctactcattc	ttccgggcgg	tacgcccgtt	tctgctcatt	tgcatgttgg	tcgacgatag	840
cacgcccagt	ggaaagaagg	ttgtggacac	tgcaccgatc	cgtgaagtgc	cggatgcaat	900
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agcgcagaat	atggccttga	attcgcttcg	cacgcccgaag	gtttggagat	cggacgagcg	1200
cagctgtgca	ggccgaagct	gccggatccc	atgtcatacg	gatatgaatc	ccgtgctgct	1260
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cgtgtatcct	tgtggccgaa	tcgaccgtgt	aggcgtgttt	gcttcgggtc	acggttctat	1560
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ccttggccga	tctctatgaa	ttgcggcgca	atggtgcggc	caagctatcg	tacaggcaca	1980
tcgcgacggg	acaacgggat	tggggatatt	ggcggattcc	aactcatggg	catggagggt	2040
tgcgatcccg	accatataag	ggcgatatag	aacgcctgcc	cggctcctgg	ctgctgcctg	2100
taacgacgtg	atgacaggcg	agaagggtac	acgtcgcacg	gcatttcgct	ttctggtcat	2160
acggatgaat	gcgagggata	tgagattcat	atggggcgga	cgatgctgtc	gaagggtgcag	2220
catcttctcc	actgaatcga	ctctcgatgt	gaacgaggat	ggatatttcg	tggatgctac	2280
ttgtatgggt	acttatgtgc	atgtatcctg	gacaatccgg	ccgtaataga	ctatctgctt	2340
tcaccgtatg	caacaaaatg	gaagagcgga	aaagcttcga	ctatgtccgc	tataaggatg	2400
acaatacgat	aaattggccg	accatctgag	acgatatgcc	gatgtcccgc	gattttacaa	2460
ctgatgaaag	acgatgatta	aaggacacgg	agatgacctt	accgtcacgg	ccccattcgg	2520
gcaaatttca	gttcgaatgt	ttataacgca	ccgagcgtca	gggattgctg	gatcaccttc	2580
acaggagatt	ggatagctcg	gttcctatcc	ggagccggag	ccttattctt	tggagaaagg	2640
tttggcgatt	atcacggtat	agctgcccgt	tcaatcagtg	tgaccagcgg	tgccacgaag	2700

```

ctatttatct catagcgag gctttccgtg gatcttcttc agcctagtag ttcccacttt 2760
cagcgaatat gccgatgctt gccggctgca tggcatcgctg tggattttat ttccaagccc 2820
gaagaggctt cttctcgata tgtatggtct ggctctgtaa tccgaacaat cgcacgggac 2880
gtgtttggaa gcaagcg                                     2897

```

(2) INFORMATION FOR SEQ ID NO:787

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 693 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

```

ctgcggatct gtcgttgccg aaagtcggtc gatgcacatc cgacttgctc cgggtgtagca 60
agcactcctc aagacgttgg atgaaatgga aaagaccgta tcgagcaagc cttggcacga 120
aacggcagca acctttcgaa tgtggcaggg aattaggcat cagccgccag actctgtata 180
ataagatgaa acgctagggc tgtagccctt cttctatggg aagacggaag accggcagtt 240
tcggctgcat ctgttattta ccatcgatcat ggcggtgggt ggtacttggg cggcgctgca 300
ggacattatg ccatcactgt ttttgcagcc ggactcgcta tctttccgcc ttgcggttgc 360
gtttacttta tcggcgccat cttcaagatc ttccctgctc ttgaatgcta tcgagaatgg 420
cgattattcc gtgcgctttt cgaaatggga ggcaatgtct cgcacgaac attcaaccgc 480
acgcttaatc tatcaaggag atcctcagcc gttctcgtga tgaggctata gccggcgaga 540
gtttctcgta catgtattgg aacagattcc tgtcggcatc atgatggtgc tccggaagga 600
tatgtctatt ctaccaatac agtgctgttg cgctcccggt gttaccctgt atcacacacc 660
ttcgatcagc taaacgtgtg tcgccgacat gcc                                     693

```

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 634 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...634

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

```

ggtaaattgg aatttcattc acaatattac acaatctgct taaagaaaaa agagaagaga 60
ccgcgccaac attttttata tgtttccttg ccaagaaaga gagaactcta cattcgaaat 120

```


ctctttgaag	acatcctggt	ctgaatttta	ggaatccgaa	ggccgtgtat	tattttttcac	180
tatatttgca	atacagaagc	tgattaggaa	ggcgaattcg	ggcgattttt	agcctgtaac	240
cggttctgat	cagttttttc	tttatttggc	atgtgggtgt	gagtcaggat	acttttgtca	300
cttccatagc	gttccggcaa	gcccttacca	ctctcctccc	tcttctaatt	tccactaaaa	360
aacttgcacc	aaaaaagttt	tcaacaacga	agcgagtttg	gaatgattcc	aaataagcat	420
ccaaaaggga	gaggcatcca	agtaaaaaag	gatagaaaac	tgtcttccca	acttcgaaat	480
tcgttttcag	agagtcgaat	aacgatttgt	atataaatga	ctttcaattt	atatataaag	540
gttttcgttt	tatatataaa	tcgttttcaa	taaatatata	gatcgtaatg	attcgtatat	600
aaatcgcan	ctcgaaaagg	ccttttccga	agcc			634

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3765 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

gaatccanca	tctccctctg	gtcgagacag	tagtagaagg	cgggtactctg	taatcaaaat	60
gaagccatcg	ctatctatct	ctatcaataa	aggtgtccga	tcaggataac	tactccccaa	120
ctgtcagaag	cagagctaca	cggaaagcgtg	atattacatt	tgccggaaaa	ttcgtctctgc	180
gatctcttag	gatcgactct	ccggaagcgg	tgacatcact	tttgccaatg	ccacgatagc	240
caatgtctga	acgtcagcct	tagaggtagt	ggcgacatac	ggggcaatat	ccttccggca	300
ggaatgcaac	tctctcgctg	gccgggttcgg	gcgacataga	ccttcgctcg	gtcactctca	360
gagagtggaa	gccgggtatca	gcggaagcgg	agtataaaga	taaagggaca	aacagccttt	420
gccgcgctga	aatgcagcgg	agcggagacc	tcgaatgccg	taacctgtcg	gcccacaacag	480
ccgacgtaag	atcagtgga	gcggagatgg	caagctggct	gttaccgaaa	agctggatac	540
aacctatccg	gacagccgg	ccttgtctgc	tatggcaaac	ctgtcatcgt	acacacaaag	600
tcagccgttc	ttcctctttc	cgaatggttc	cttaaatcaa	cgacagcata	gattagaact	660
tttcatagac	gcgagtagca	ataggggaga	cattccatca	gagagaatgt	actcgccctt	720
actacatttg	agaagaaacc	ggaggtctta	tgccgcctcc	ataaatgaat	tttgaaacag	780
ccccgatca	atcgtggatc	ccttcccccg	actcaatttg	tttgtatttc	atccggcata	840
aaaatggaat	ttttaattgc	atltataggt	aggggtgtga	aagcgcaatg	gtagttttta	900
tgtttggag	aaagtcgga	aatagttact	ttgtttttt	gcataacgat	tgctttttgcc	960
catttgatgg	gcgaaaacaa	tatgatcaca	gtaaagacaa	tgaacgaatt	caaaaaatac	1020
gcgacccgaa	tatcgggttg	aatgcacagg	ccttggaacga	ctataccaga	atccaaagag	1080
ctacatctct	ccgaccatta	tcgaagaacg	ccagttgaac	gttgacacat	ggatgtgttc	1140
tcacgtctaa	tgatggatcg	gatcatcttc	ccttgccctca	gatcgacgat	tacacggcca	1200
atgtcattca	agcacagctt	ccttacttga	tagcgccgac	cccggtaaaag	atatttccat	1260
ctatctgaat	tcaccggcgg	atctgtttat	gccgggttatg	gcataacga	tacgatgcag	1320
tattagggtg	cgatgtggcc	actatctgta	cgggcatggc	tgctgtctatg	gctcagtgtc	1380
gctcgtagca	ggaacgaaag	gcaaacgctt	tgcttttgct	cctcccgctg	gatgatacat	1440
cagccgcttg	gtggtatgca	ggggcaggcc	gcgatttgga	gatcgagct	cgcgagattc	1500
tgcgctcaa	gaaagagctt	acacgattat	ctcttctcac	agtggaaagc	ccgtcgagca	1560
ggtcgaaaag	atagtgatcg	ggactatttg	atgacagccc	ccgaagcatt	ggagtacgga	1620
tgatagataa	aatcctcgaa	agaatcgaa	agtagccctc	tcgttaccac	agggggactg	1680
tatatttctc	atggcaagaa	aaaaggacga	agaatctgta	gtttttgtgg	catgccgaga	1740
acgcaggtaa	acctgatgct	cgaagagtcc	atgctcatat	ctgcgatgaa	tgtgctctcc	1800
gtgcaggaga	ggtgttcgag	aagcattgca	aaaattcaaa	tcggaagaga	cgaacaatct	1860
gagagagagg	acttgccctg	gcctatagag	atcaaggaat	ttctcgattc	gatgttatcg	1920
ggcaggatga	tgccaaacgt	tttctttctg	tcgctgtata	aatcattaca	aacgattgct	1980
ccagcaagag	gacagcgatg	gcgtagagac	gagaaaagca	atattattat	ggtcggctcc	2040

acgggaaccg	gcaagacatc	ttggctcgta	cgatagccaa	aatgctccat	gttcctttcg	2100
ccgtagtgtac	gctacggtac	tgaccgaagc	cggtatgtg	ggggaagaca	ttgagatatt	2160
ctcaccagac	ttttgcaggc	cgcagactac	gatgtcaaac	aggccagaga	gggattgtct	2220
ttatcgatga	gatagacaag	atagcccgtg	agaggataat	ccttcgatta	cgcgtgatgt	2280
cagtggcgaa	ggagtagacg	aagtttgctc	aaacttctgg	aaggttctat	cgtaaatggt	2340
cctcctcaag	gcgtcgcaaa	catccggagc	agaagatgat	tccggtggac	acgaggcata	2400
tctcttcggt	tgtgccggag	ctttcgacgg	catagagaag	aaaattgctc	gcgactcaat	2460
actcgtgttg	tgggtttatac	tgccggattg	caaaacagga	tatcgatcgt	gagaatatgc	2520
ttcgctatat	tcgtccgcag	gatttgaatc	ttttgggctg	attcctgaaa	tcacggtcgc	2580
tttgccctatt	ttgacccttt	ggagccgtta	gatcgggatg	cccttagaaa	catcatgacg	2640
gagcccagaa	tgccattacc	aagcaatacg	aaaaactgtt	tgccatggat	ggcataaggt	2700
ttctttttaca	tccgatatgc	ttgatttcgt	cgttgataaa	gctacgaatt	caaactgggt	2760
gcacgcggac	tacgtcccat	cgtagagacg	atctgatgga	tgcgatgttc	acgatgccat	2820
caggtaagaa	gaagactttg	gtgtagacaa	agcttatgca	gaagctcatt	tgaatatattga	2880
cgatttgcta	cagatcaata	atagaagtac	ccccaaagaga	atctaaccctc	aaggagtgtgc	2940
acccggagtgt	tagtgtgaca	cctgtcaagt	gttgattatt	ggacattgtc	tggccgaaaa	3000
attacagcag	tattttggat	ttgaccgatt	caaaggcatc	aggaggctat	cataagaaat	3060
gtattagccg	aacgaaacac	ttttgtgtga	tgcctacggg	aggtgggaaa	tccctatgct	3120
accaattgcc	ggccatctca	tgaccggcac	gaccatcgta	gtctctcctc	ttatcgctct	3180
gatgagaatc	aggtggatgc	catgcgtagc	ttcagtgcc	aggatggggg	cgctacttta	3240
tgaattcttc	tttgaataag	acacagctcg	aacgtgttaa	gaagatgtac	gcgatggact	3300
taccaaaactg	ttgtacgtcg	ctcccgaatc	atgacaaaag	aagaaaacat	tgcttttctg	3360
cgtgaaaatag	atatcttcgt	tacgctatag	acgaagccca	ttgcatatcg	gaatgggggc	3420
atgacttcag	cccgaataca	gacggattcg	tcctatcatc	aatgagatag	ggccccgatg	3480
atcatcgctt	tgacagccac	ggctaccccg	aaagtgcagc	atgatattaa	aagaatcttg	3540
ggatgatgga	tgccgatgta	ttcaaatcgt	ctttcaacgt	cccaatcttt	tttatcatat	3600
acgtcctaaa	acacaggacg	tagatctgac	gtagtcaaat	acatcctatc	ccagccggga	3660
aagagcggtg	ttgtcattgc	atgagtcgaa	ataaagtaac	tacttttggc	caggttttgc	3720
aggcaatggg	atcaaagccc	ttccctatca	tgccgggact	gacgc		3765

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 772 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

gtgtgacttc	cgacagaaca	gttgtgagca	atctgtacaa	ggttgtctac	tttactccgc	60
gatgtatgat	cgttgaatcc	ataacagccc	tgtcgataaa	gtgttggcac	cgatttcgac	120
atcatcttca	atgataacgt	tcccagtg	ggaatcttgc	tgtagccttc	ggcattcgga	180
gcaaaaccga	atccatcgct	ccgataacgg	ctcccgaatg	aatcacgcaa	cgcaaacgga	240
tggaaagcca	tcatagaccg	tcacatgggg	gtagaggatc	gtcccctctc	caacgacaca	300
ccgctaccta	cataaacatg	cggatacaag	ctacagcctg	taccagcgat	gccccttccg	360
acacgtaggc	aaaagctcct	acatagcaat	caccggcagt	atcaccgatg	gatgaacgaa	420
agccgtggaa	tcgactccct	tctttggggc	ttcatgctgt	ccaccaactg	cattagttgc	480
gccaatgctg	ataggcattg	ggaactcgta	tcagggtcgt	cttcaccgat	tcgcgcggtc	540
gaagtcctga	ttgacgagta	ctgcatcgga	ttgtgtttgg	tacaaatatg	ttcgtaactta	600
gcattggcta	aaaacgagag	acagccacta	cgaccttctc	tatcttggca	aaagtcgtgc	660
agtcgcacct	tgggattg	ctccacgaac	cgtggaggta	gtcaagctat	ctggtagggc	720
gtaaattcca	tgtgacgggt	taattagggg	acaatggatc	ttaaaacatt	tt	772

(2) INFORMATION FOR SEQ ID NO:791

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 481 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...481

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

```

gagaggggaaa agtgctcaga acaagtaaaa aaatgaccgt catagctatc atgaatgaag      60
aacggcaacc tgtgttctct ttcgtttttt gatgagtaaa ggtaaaagca aaatctttcg      120
atatgggtca ttttcgaagc tgaaaaaacg gaatattcac cgaaaaatat gcgcaaaaaa      180
agttttcaac aacgaaaagt gtttggaatg attccaaata agcacttctg agagatcgaa      240
attcgggtaa agtacgtaac atgacagcct ttttcagatc gaaaagctct ttttttagtt      300
cgatgaacaa tctatatatt aatcattttt gatttatata taatcgtttt cattttgtat      360
ataaatgatt ttcaataaat atatagatcg aaatgatttg tatataaatc acaacttcct      420
aaaggctttt tcttgaggga taacagaggc accatcggat tttctcttga atcgacggtg      480
c

```

(2) INFORMATION FOR SEQ ID NO:792

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 741 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...741

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

```

ggcgtatgagt tgcacttctc cgtattggca ctttatgatg aaaaacgcta tcagttggga      60
ggaggcgtct ataattgtgca gaaggaaaag ttcaaactaa tgttttctat cagagtgata      120
gtgcaggcgt ctaccaacca tatatcatga aggcaagatt aaggacagct tgcttctgcg      180
cgtgttgggc atggacgact ggatgccaaa caagagcctt accctgatgg tacgtacgac      240
tttgtgatgg ctatacgatc ctccctcaga aaggagtgtg gatcctccct accgggagcc      300
gttcggaaaag acccttgccg atgcgttttg cgatcctgta ttgcgaaaaa gtactgcttc      360
caagagctat acgatacaac ggcagtggct gccagcaagt ggcagagaag aacaaattta      420
tcttccgagg cgaatacaaa gttctccggg cggagacatt tctttgggag ctatcaacgt      480
aacacccgga ccgtcgtagt gacggccggc ggtgtcaagc tgacggagaa tgtcgattaa      540
cggtagacta cctctccggc aacgtatcga tcatcaatga agcgattcct cttcgggaac      600

```

```

tcccatcaat gtgtcgctcg agaaccgagg gctgatgata tgcagcgcaa tgcgatgttc 660
ggtatagatc tgaactacaa cttttcaaag acttcaccct cggcggnacc ttcatgcacc 720
tgagcgaaat gccgcgacga c                                     741

```

(2) INFORMATION FOR SEQ ID NO:793

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 639 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

```

tcatacatctt ccaaatcatc gtcaacctgc gcgacagcct tcgcaatatt ccaaagagag 60
ctttcttgtc cttacctcat tgggagccac tcatgctcac tgatgcgtca tctggctcta 120
ccggccatta ctcccgaagc actctccac tacgagtggc cattgggaca gccatatcag 180
tactcttcgt gacagaacat acgggacgaa taaagggcat gggattcttc attgtcgatg 240
catgggtcgt atcagctata cggagatgta cgtgggcatc gtggtttttag ggatgcaggt 300
tttttctttt ttttgctcgt ggatgggtctt gagaccgcac tatcagatgg aggaacagtt 360
agccatacaa tcaaagaaat catcattcaa caaacaataa cgatcaagaa atgaaagtaa 420
aacatctatt agctgcatcc tgatgatgct aggaacaggg aatatttgcg cccaaaagtc 480
cgcaaacagt ttttcaatgc aatcaaagaa cgggttagcc tcagtggtta tgcgcaagcg 540
ggttttcttc ttgtggcttc cctacggcga gttccgaaaa nggagaacac acacattcga 600
tgtaaagcgt atcaaccttc gtgccatgtc gcatcacga 639

```

(2) INFORMATION FOR SEQ ID NO:794

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 575 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

```

tccaatcgta ttccgcttca tcaaacgggt tggcttgggc gcgaattaat tcttttcatg 60
gcatgtgggg agatcttact ccccataata agcccggacg gtcggtagtt ttctctttcc 120
cgaaaatact atcccatga atcatactgg tacatggaag ggagcatagg tctggagaat 180
atcttccggc tcttgccatc gaatacttcc gacgcttcac ccaattacaa acgactccga 240

```

ataaagggga	gtccgtgctc	gcttccagat	cactttctga	cctctaaagg	aaagggaaat	300
gccgaaactt	ttcggttctga	catttcctcc	tcttcgaagc	gatcttaata	gaatcagagc	360
ttgatgaagc	gttcggccgg	tgtgctgcct	tggatcatgag	tttgatcaca	taggccccgg	420
cgggtcaaaac	cttcacgccg	acatgcgagt	attctccata	gagagcacca	aacgacctga	480
aaaatcaaat	tccggacacc	gaagtcacct	tcattgcttaa	tattcagtag	atccttcacg	540
gattggggta	aaccccgga	tcagaagaaa	aatag			575

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

gcgatagaaa	tgttcgtcac	ctcgtacccc	gttccgcatg	ttgtgggcaa	atgatcagtt	60
ctttctcttt	gataagaggt	atthttgcgg	cgaatgcacg	agtacatcat	ttaatccttt	120
cagaacgaaa	agtttagaga	tgtcaatacc	gtacctcctc	cgataccgat	tacgcggctg	180
aactggatat	tacggagtct	gccaagatgt	tattcatcat	ttcgtcagaa	ggctcgcctt	240
gcccaatttc	tcctgcataa	caaaatggca	ggggagctgg	catgccttca	tataggttca	300
tagatgaact	cgttggtaat	taccaagtcg	cgttctccaa	gacgaattcc	ttggcaaatt	360
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(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 734 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

gggcttccat	ttgggcatag	tctgtatcac	gcgaggggct	tccttgtcag	tgccagggtca	60
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ttaccttacc	ttggatgcc	atttcggagc	ctgctcgga	tagaccaa	ttttactaag	180
ccatttagag	agagcatata	accacccggg	aactctgccg	gactttctac	cacttcgtgg	240
atttttcctc	ttcttcctca	actttaacgg	gggcaacggg	cgcaggcg	ggcacggttt	300
gctctcatcg	acagagacca	aagcgatttt	ctccactttc	tggtgttatc	taccacctta	360
aattcttccg	gcagctgtac	ctcctgttgc	tggtgtgtgc	cggtcgggc	tgctccggct	420
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ctacgacaag	ccccaaaagg	aagttcaaac	cttttccctt	ctccaagtgg	ccttaggcga	600
tttcttgatt	tccatatctg	atagtattgn	ttttgattct	tgctttgggg	caaaaataca	660
aagttttttc	atncccaatt	cgttttggtg	gaaaaaatca	ggcgtatggg	gcaaaattgc	720
aggctgcaaa	aatc					734

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3584 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3584

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

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tgggggttgc	cctgattacc	cnnttcgcga	aaagggcggg	gtagaccacg	aatcgcttcg	180
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tccggcacat	atatgcgaga	tgcgggctac	acagaagtct	attc		3584

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

agcggattgt	ccttttatag	atgtacgatc	gtaaaaactt	ggaaataacc	actcgatcta	60
gcccatacta	agaagaaaga	gcctcatagg	atcggcagac	gatcccatga	ggccccaaac	120
cggatatcgg	caacggctaa	aagcggtaac	tatgcccacg	aagaagtcac	gattataagc	180
gtattcgtaa	tttccctttc	tcttagagcg	gtcgtcgaag	aggattgcct	attgtcgttc	240
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ctgtatataa	taacgcttat	agtggaaatgc	ggctattatg	tttccccgat	gtcccagcgg	360
atatttggtg	ggccaccaag	cgttgggcca	aaaactctgt	gctgtagttg	ttcggtttcc	420
atccttccaa	cttctgccga	ttgtaccata	tataccgtat	gcaaggaaag	gaccgccttc	480
gatcgaaacc	ccatgtcatt	catcaggctc	aaccgcattg	cggcattgat	cggcagttga	540
gatagtgcaa	gcgagtggaa	accatcgtaa	tataggtacc	aggaaccatt	cgggtatata	600
ccattcgggt	ttggagccct	tcatcgata	gttcagaccg	gagccaagta	gaatcctctt	660
gatccgatca	tgaattcggc	agcggcccga	cccgcaggcc	gacattcatt	tggtgtccca	720
cacatatccg	tctctttcat	gctctgattg	ctgcctacga	agttg		765

(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 915 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...915

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

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tcgatacttt  tgtcagaaaa  aatttcggcc  gagatccgc  tccgtttgac  acatcggctg      60
cttgttcgta  caaagattcg  tattcggact  cctgaagtca  cggatgaggg  aaacgaactc     120
accaagacgg  cgtcgggctg  tagcactaga  tcgggaagac  ctttctgcga  ttcggacagt     180
acgtcccaca  acgaacagaa  gaagccgtgg  ctatctcgtt  aagacgagac  agagtgggat     240
ctcctttcct  cgcttgggat  aattgattac  acgcctgagt  gcttcgtcat  cattggattt     300
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tcgacgatcg  atccgctacc  gtataagcct  ccaaataccc  cgacagacaa  cccgtcaggg     540
aatacgtca  cctacttggt  tgttcgaaaa  aacttgcttg  gggattcgcc  ctcatgtgtga    600
gcaatcaagc  tattggcagc  attgacgatg  ctctgtgact  ccgatagttc  tcctcaagtt     660
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cacggaaact  gtataactct  gagcatcatc  cccacgacg  aataccttgc  ctttctcccc     780
catcactgcc  tggcaatcaa  atactgtgca  aagttgggat  cctgatattc  cgtgatcaat     840
aaataatcga  tgcggtcacg  gtaggtctgc  aagacatccg  gaaatcacga  aaaaggacat     900
tgttttgaaa  agcag

```

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2075 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

```

tcggagagag  acgtttttcc  ttcgaaaaga  taactgccat  ccccaaaaac  ttaaagggga      60
gttcttctc  atcgtaactg  tccgtaatct  cgccgacgtc  tcttcccaat  atgtcctcca     120
ttgtgatcag  tccgtaactg  ccaccgactc  atccacaacg  atggagacat  gcaccttatt     180
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gacgaaacaa  cgaagtcaag  catcttacga  aaggccagct  cagatccaca  tccacaatat     420
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catttcttt  cctcggctc  tccctcgta  gtggtgagg  ctaccgcttt  cgagagctct     540
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ggaagagtga  ttccgttcgc  ggatgttcg  cgatcgatcg  gctttagtga  aaaataagcc     960
acctcacagg  aggacataaa  gccgaacagc  aaagaagaag  caggtcgata  atgaaaagcca    1020
ctatggctgt  gcaccgatag  gattgacctg  aagcccttca  aaaaaatcag  taataaggggt    1080
aagtccaaaa  taaatctgat  ttgggttaga  acggaaggct  ggacggagtt  ccgagctttc     1140
ttcttttgcc  gtatcacgga  cggatgaaga  agacgcaggg  gcgtcgtatc  ttgagtcgat     1200
gaaggtgtct  gtgaagttct  gctttgtctc  gattggagga  accgctttca  aaaagtttga     1260

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ttttctcggc	aagggtttccg	tcacttgccg	acgaaccctt	gtattgtcta	catacgtgcg	1320
gtacggattt	tcccttcgac	atataggaga	ctccctttct	tgatccactt	ctggcaaaaa	1380
tgcccaactc	gcatagggca	accacattat	gccattccgt	tgctccggca	cttcagtgcc	1440
attggccagc	ttgtagcctc	gctcgggaag	gccagcgaaa	agtttgcgac	agccgaattg	1500
ctatcgaaat	accgaatctg	ggatccttgc	ccgtacggcc	tatcaagatg	attttattca	1560
gagacatggc	aattttctaac	caagtgaacg	aaacaaaaat	aggaaatatg	attcgttaag	1620
ccaaatgctg	ccctgtctgc	aacttgtgca	tatccgatgg	gacggcgaaac	gcagcaagcc	1680
aatcaactgt	tcacgaagtt	tccggcgaga	ataatctgac	gcacggccaa	acgtacttcc	1740
cttaccggac	gaggcatacc	aaacgacgca	ccagctcttt	ctgcgaagggt	gataattgct	1800
ctacggtcag	ttgggaataa	acgtaattcc	ctgaccgctc	tccaccaatc	gcatgaatgc	1860
ttcatgctac	cgccggaata	tgccgtctga	cgttcatgca	accctttcat	cgacaaaaac	1920
gaacgagctg	atctctgaag	caatgacctt	cgtccaacag	cagagacgat	gtgggttgac	1980
ctcggtagt	cgaattacat	cttgttcgat	agcggtcac	agcgcgatac	ataccccgaga	2040
aactcctcat	aatagagcag	tcgtcttcaa	gacct			2075

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

tcgggacatg	ccttgctcga	ttcgtttcgg	gtgagtcceg	atacgagtga	ttcatgaaaa	60
cgacatcggg	acaataaaag	gagattacat	ctacccaaca	ttatcggcgg	gtgcatctat	120
gaattgtatc	ttgtagccgg	tgattttttc	agtagagctt	ccagccctgc	acgaatcata	180
ggtagcgggt	ccactacgct	accttgagtg	tgatgatatt	cataatccgt	tttccttttc	240
tatttacgaa	tcaaaggcac	gaaaagatgg	tcttcgacaa	agttgtgtgc	tgacaatcgt	300
cttccgagga	gaatatgtcg	tgacgaacgc	tgttgagttc	gtaccactcg	atgtcgggta	360
gtatttgatc	agcaggttct	taagttcggg	aacttcagct	ctatctgac	gtggcggttg	420
ctgaatatat	cgattctgta	ggcgaaacgt	tgtccaactt	tccgcccaaa	agtttttcca	480
cataagggaa	accgttttct	cttcgtagct	catgtgcttg	cgtacttcc	ccacatacta	540
tcatagaatt	gacgaatgac	gaataccact	tcggatggac	agttggacgt	gcgggcaaaa	600
ggtctttgac	cggagcaaa	ggcagacgaa	attcgagaaa	taattatg	actttcgcag	660
atagttgatc	aggggaagg	ctgacaatct	gacaagacgg	tctcggaagg	gtgttcggga	720
cgggttgata	gtgcatgatt	acagccatga	gggtattggt	gtttaccta	ttgtcctcac	780
agactctcgt	atgctctttt	ctccgaaacc	aagcgaaata	ccaaagcgcg	taagaccagt	840
agtaagtcgt	aattctcgca	tatcaagtca	cttagctttg	tatgggtgag	tatgatttct	900
ttatgtgatg	tgttgtcata	cgaaaaaata	tgttttgttt	caaaacaaag	tatagttatt	960
ccgcctaate	gacaatcccc	catataggtg	tctgcttgaa	atcaaatgat	ttcgcacttg	1020
atcgttctct	ttcttatgct	ggttcggcct	aaaccccttc	aaagagggaa	tggcattttt	1080
cgtcagaatc	ctgtggagag	gtctttgtct	ttcttttcgt	cttcattatt	ttgtactgct	1140
ctttagtcgc	atatttatga	gaataatcca	tactttgcag	cgaattttta	tgaacccaac	1200
taacttaaag	caatacggag	gtagtgaatg	aagaacatcc	tgattatcgg	ctctaccgga	1260
cagatcggat	cggattgact	atggagttga	gaaagcggtta	tcctcaggga	aacgttgtag	1320
cggttatatc	cccggtgcag	agcctaagg	cgaactactc	gaaagcggtc	ctccgaaata	1380
gtagacatca	ccaatgccaa	gcaaatagca	gaagtggtgg	aaagtataaa	gtagatacga	1440
tttacaattt	ggctgccctt	ctcagtgccg	agcagaagcc	aaacctcagt	tagcatggca	1500
tattggtctg	ggaggacttt	caatacactg	gaagtagctc	gtgaaaagaa	ttgtgcagt	1560
tttacgccag	ctctatcggt	gctttcggca	atgatactcc	taaggataag	accccccgga	1620
tactattcag	cgtcccaaga	ccatgtacgg	agtaacgaag	gtcagtgcca	gcttttgagt	1680
gactactacc	acaagcgttt	cgggtgtagat	acacgtcggt	tcggttcccc	ggtttgatct	1740

ccaacgtcac	cctccccggt	ggtgaacgac	ggactatgcc	gtggatattt	attatgcagc	1800
tgtcaaagaa	ggagcttcac	ttgtccgatt	aaagagggtg	cttatatgga	tatgatgtat	1860
atccccgatgc	tcttcgtgca	tgcgtggagc	tgatggaagc	tgaccctgcc	ctctggtaca	1920
tcgcaattcg	ttcaacatca	ctgccatgag	tttcgaaccc	cgcagatagc	ggcagcagtg	1980
aagaagctgg	tacctgattt	tgttatgaat	acgaagtcca	tcctcttcgt	caaggatttg	2040
ccgaatcgtg	gccaaactat	tggatgattc	tttgtctcgt	agtgaatggg	attggaagcc	2100
ggattacatc	tcgattccat	gtctgcagat	atgatccaga	tactgaaagc	tcgctaggca	2160
agtaaacagt	cttttttagct	gccgataaccg	acttcttttcg	gatattatcg	atcggcacaaa	2220
tactcatgat	gggggctgtg	tcaaaattca	ttttgtcaca	gcccctatct	tttcagttact	2280
cataatacga	tgaagttcca	acttcacaaa	ctagggtctt	ttttattcgc	caatttcgag	2340
taactcagtg	caatcaataa	attaatgaga	gacctttgaa	aaaagaggag	gttatcaaga	2400
acaccctttc	agtgtcattt	tttcacagta	ggatggtaac	tgctcaggat	ataaagctcc	2460
ccttatccat	cgggtccgacc	tcaaaaacaa	ggccggccgt	gagtgttcgc	tcacccgaga	2520
cacatttgga	tataatgaga	tagagattaa	ggctatgctt	ttgaggatgt	ttcggtatgc	2580
gttttggcga	ggcttcgtac	cgacaacgac	ctccattaaa	ccatcgatgc	atgctgcctt	2640
tgaatcagtc	aataacttta	atctttttggc	gacgtattcg	gatactgatt	tatgtctgaa	2700
aaagctgata	ttcgggaagg	ttagtttgtg	atttggaagt	caagatctta	ctaaacttta	2760
tttttgagaa	aaggcttgaa	agttccaaac	acatagctac	ttttgccgga	gtaatctctt	2820
actattattt	agagttctct	ataagaccca	agaaattatg	acaatgctgg	aggctaagca	2880
ccccggcgaa	acgaattcct	ccaagcagtg	aaggaagttc	ttctctctgt	agaagaagtg	2940
acaaccaaca	tcccagagtc	gaaaagaacg	gtatcatcga	gcgtatcgtg	agccggatcg	3000
tgtattcaca	ttccgtgtac	cctgggtaga	tgaccaagta	aggtagcagg	aaacatcggc	3060
taccgcgttc	agttcaacaa	tgccatcgtc	cgtacaaggg	cggtagccgt	ttccatcctt	3120
cagtgaaact	ctctactgga	agttcctcgg	tttcgaacag	atgttcaaga	atgcactcac	3180
tactcccat	gggtg					3195

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 849 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...849

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

caggacctgc	caaaagaaaa	gtttgccggc	aaattatgct	cggcaccatc	tctcggaag	60
aagaataggt	agtagcaagc	ctatagtggg	tggagggacg	tatatactga	tggaaagagg	120
tcgcctattg	ctaccgattt	ctgatattat	tccatttttc	ggttgtcttg	ataggaaagc	180
aaatgtccct	tttgtgaccg	gtcgaaagta	aaagatccga	tgccacaatg	gaagcaccat	240
cagcttgaat	agctgtgcga	ggaaaagcga	ttcgaaggca	cgataggaga	gttcataccg	300
gtgagttcgc	taagctgcga	ataagaggct	gttacgtagc	gttggttaatg	gcatcagtta	360
ctgtcatacc	ttcgggtgta	atccatgcac	gcctgccact	acgagaggaa	aaggcatggc	420
aacgaggcgg	ataccacgat	tcgaacgagg	gtcaattcga	tacgtgtatt	cacctccttt	480
tgatcgaatc	gagaatagct	ttgcccgttg	cactgaatct	gtcctgtcga	gggtagtgcc	540
cttgatattg	gcaaaaagag	cagcagggct	actgacttcc	atatcgttcc	ggcaccggat	600
atggacccga	atgtatgggt	ggaaccgcac	cctgcgaaag	caacgacaca	aaaaagataa	660
cgacgataaa	tgaatccca	agggggcaaa	cttcttccta	agcatcattt	cttcttttct	720
gggatatat	ttcctgttct	atcttcttgg	ctagcatggg	actgcctcct	ccaccgatct	780
ctttgcccgt	ttccattcca	acatagcttt	ttctttctct	ccgagcatat	agagacatcg	840
ccatgggtgc						849

(2) INFORMATION FOR SEQ ID NO:803

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

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ggttgatctc ctttcttcgc aaaaaggaca ctaatactcc ctgctttaaa atccggaaga      60
ggtacagcac atttgtgtag ggagccattc gtgtccgaga aaattgattg aacatttcgt      120
ctctctttat ctatctgttt tggggatttt tatgatatag tttgataatt gcacttattg      180
taaaagtatt atgtcattta tgagtgggta atctgtaata gtataataat atatgaaatg      240
atggcttgag tggatgtttt tcatgcagat cggaaagaat tttttgttgg acataatggc      300
ttgagataat ctgtttgtta gtaaatttca gcgtttttgt gtcgcgagca ctgaaaaagt      360
caattcttag agaagtctgc cgatattgtt atgggtgtccc gtattttttt ttgcctcaca      420
ggtgcccgat tccccccccc ctttttgatc gaatatctgc actggcaatg taaccttgtg      480
cacaaagaat taataattcc acagggcaat cgcatttgaa ccgttacaca cttatagatt      540
aacgattgct acgctcgggt atcaaacaag tacgaattaa tgggaccttg cacaataagc      600
aggcactttt gtttattctt cttattgtgt gtcaggcact atttggtaca cgcggattt      660
ccacaagtgg aaagatagct ttccacgggt gaaaataaac tttccaccaa tggaaaattc      720
tttttccaac ggtggaatct acttctcttt aatgagtacc ctttgagac atccaacgac      780
atgacgtcaa cagcacttgt gctcctccaa tcatcgctt gctccccgtg tatcaccttg      840
tgtgccacgc tgtgccgtct gattcacatt acgtccatac gaccgatacc tcctccggct      900
ccaataatct atccggctac cgtcgggtaca cgtagcagcc aacaatacca atgaggagaa      960
accgctcga atgaaaccgc aaaccaattt aatgcgtcga ccccgggggc agcctgtcag     1020
ggcgatcgct ttgaaaattt ttagtctctt tcctctatga tttgaatctc tggcatatga     1080
ttcgcaacttg ttttgataat tgaatgtagc aatcgtagg tttataatgt gttgacagtt     1140
caaatgcgat tgccctgtat ccgagaaata atgcagaact atctctcgga aaaagcacta     1200
cctttgtagt cattccaatt taattcgtag taatcaagca gcaaattgcg tgtgatggaa     1260
aaggttatcc gcaggctctc atatcgggtc atcataaaga aggtttggcc gagatactgg     1320
ccgattgaac agacaagggg tagagttcgt atccacagga ggaactcatg aattatcact     1380
tcgctcggtt atgcgtgtcg ggccgtggat gatctgacgc gtatccttcg atgctcgggg     1440
gacgggtgaa gacattacac ccaatgatct cggcgggtatt ttggctcgtc gcggtcatga     1500
aagcgatgtg cgagaagtag cgagtacggg ttacctctta tcgatttggt catcgtagg     1560
ctatatcctt cgaggccacc gtggcatcag gagcatcgga agaagatatac attgagagat     1620
agatataggc ggtatctctc tcatttagagg agctgccaaa aacttcaaga tgctggtatc     1680
atctcgtcac gggcacagta tgccgattt tacagctgct gaaagagcag ggagctcgaa     1740
cctctttggc tgaacggggg atccaagagt cgagtgcagt a                      1781

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(2) INFORMATION FOR SEQ ID NO:804

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 624 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...624

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

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gtatagcctt gacggacgaa tacgacacga ccgaatgagt cggcgatgag acgatcggca    60
gattggctgc atcaggcagg ttcgcagcct cccgtatctg gcggcattgc ggccttgaat    120
atccagtcgc aatacggctg tctcgggagg gaggggaagt ctgccggttt gtaacgcttg    180
tgtccgtcgg catcggaag aggaggatca gcttgcgcc ccactgctcg aagtcggctt    240
tcacctctcc aaatctttca gagcatggtt ggtaggctcc tgaccggctc cgagatggcc    300
atcgcgaaat agccgcgtcc tgtggtagag aggagcgagc ggtttctgca tgggagagat    360
cgtggtagag ctgttcggca ttgatggagc cgtcacctga atgtcggtcg aatcgtgtag    420
cagttcgagc ggttggcgag cgtcttaccg gcttctaccg tgaacttcct catccggcac    480
aatacgctgc actggccata cgcgtaccgg taacgaggaa ataatgacct gcattcattc    540
cttggggcgg tcgaagagcg tcttcaggtc agtcggttca tttcatcta atagagcgtg    600
cggatgatgc ccgaggtgta gctc                                     624

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(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1001 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1001

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

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aaggtcgctg ttgctgaaaa gcaatgtagc gattgctata gcaaataacg atttcatctt    60
catttctgct gatattttta ttggatttat accggtcaaa tttgttttta cagaggtcaa    120
atatagtcaa aagtgcctga tcggtggctg agcgataacc tcctcacgag taccgctaag    180
atgcagacag tgcgcgaagt gtcctcaccg atgacaagag cgatccaaac tgtgccgacc    240
ggcacagatc cgaaccgccc gaaggtcgag ctattcccg agtcgcaatt cctaattggc    300
atcaagcaga cggcaaacac ccacagccat actgcgtgcc acagctcgct gactactgta    360
tggctttcaa tatcggttg ggacactccc aaaggcgtat tttgatgtcg ttctgatatg    420
ccacgaccga acctctgaaa aagtcgaggt tcccgggcaa tgagttagag ccgaagcaat    480
agttcctcgg tgcaactctc ggcagtagcc aatgtaaggc ctcgctcagt caagagcttg    540
ccagttcgga aataacggga ttatccatca gaccgtgatg cgcgagaagg aacagcatcg    600
atggggcaga aatcgccctg caagtactta tagtatcgga aatggctacc atagcagcat    660
tgtccgttgt ataggcgaat ttgggatgaa tacagtcag ccataacgctc gggcatggtc    720
atgaaaagca tcgcgagtc ggtattggcc gatacacgcg cggccaaggc cacttgtttg    780
atgcatgatc tttggccgct tggcgaagtt tcttcatcaa gatgtctatg acctgtgctg    840
aagagatgcy cacagatcgg ccttgttctt ttctatgaag tcggatcttc ggccagtttg    900
tcgcgcagag tatagaggaa tgatgtcttg atccgctgaa gctatagtcg taaccggaca    960
catgaggacg ggcaaaagcg aagcatcggg gttgccctcg g                                     1001

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(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 567 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

gctccttacg	ctttaatttg	gtttgcaaaa	atagtaaata	tccttagtat	cggaaaaata	60
caatcgctcc	tctctcgatc	tttctcgcg	ggatgagaga	aggtagagag	aagagcgact	120
gcagcgggaa	taatctctgt	cgggtgcgc	ggcctataat	cgagatcttg	tatccccggt	180
ccttatagtt	ctacttgaag	gtccggatat	taccgtccgg	ataaaaccca	cgacacgatga	240
tcaaggaccc	gatcggctct	gtccggcctc	acgaacgatg	tcgctgacat	cggccccgag	300
cttaccgggt	ggcggttgat	cgaaggatg	atgaatcctt	tctgatacct	gcaccccttga	360
atttccccga	gcttacagag	gttacctcta	cacataagaa	acaccatagg	atcgcatattg	420
ttcggcactg	agggtctttg	atgatgctcc	caatacattt	ccggtcgatt	cgnccggtga	480
ttaccgaagt	cttccttcat	tggtctttga	gcgtgacngt	cagttccttg	gtcgcttctt	540
acgattgatg	gtcagcttca	ctttgtc				567

(2) INFORMATION FOR SEQ ID NO:807

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 915 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
 (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...915
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

aagaggccgt	attggaaga	tgaaacggtg	tttgcgaaac	caaagaagag	gccatgctac	60
ctttatgccc	tatgctacaa	cagcattgtg	caggctgaga	gcggtatcag	aaaccttggc	120
ttactccttc	gcaggcagaa	tttttattct	gaacggcttg	tggtattttc	gctattttcc	180
cgatgcccg	actgccgtac	cgattttgtc	gaagatctgt	tcgatgtgtc	tgcatgggat	240
accatacagt	accatcggtc	tggcagatga	aagggtggga	tacaccttta	tatacaatgt	300
aaaccacatc	tttgaggaca	atcctccatt	tattcgcat	cagagactta	tacctcgcca	360
gtggatccca	atccgacagg	ctcttatcgg	cggactttat	ccttccgaca	ggctgggaaa	420
agaaacgcgt	ttatctgcat	tcgatggtct	ctatagtggg	gcttatgtat	ggataaacgg	480
gcgttatatc	gctacactca	agggggcaat	aacgatgccg	agttcgatat	cagtgcggcg	540
ttcgtgcggg	acagaacaat	gtgagcatac	aagtagtccg	ctggacgggtg	cttcttattt	600
ggagggacag	gatatgttcc	atatgagcgg	attgcattcg	atgtctatct	gtaccgcaag	660
cctcgctact	ccattcgggg	tcatttaata	cgagcaagtt	gcatcccgaa	tccgactata	720
ccacagggga	aatatcgtag	ccgtcgagat	ggacaacaga	gacggttcgg	ctgcacgtaa	780
gacttcggaa	tacgtctctt	ggatccccaa	gggaaagtgc	tctgggagga	acgaagcaaa	840

cccgactgtc tgtgggagaa cagaaacaaa gccttcattt tgcgaaagccg atcttcgcaa 900
tctatccctg tggac 915

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 889 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

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gtaaaaggta tgagcatgaa agaagccgct ctggagggtga accactgggtc caccagaaaag      60
ctacatacag cccacagcgac ccacgcactc gctctccggt gcaacgggtga agaattgctct      120
cggacgttgc ggtgaggagt ccaccttacg gtggctgccc tgcgctcggg aggtattcct      180
gccagacagg tctatagccg cgctggggcac atacggagca caaccacgca tgggtggagg      240
tatggtagat ggcaaatggg acttcacgag agcctgcgaa cctgcagccg agctaaccgat      300
gcatgggttc acagctccgt tgtccgcgcc atgctgacgc atagcgggtc ttcggtcggt      360
acgaagggtcc ggaagagaag ttgttccgca cgccaactac acggagatca actgtatcga      420
caactatgcc ccgacggaaa tatcgaagtc aaagtcaccg accgctccgg tgctgtggtg      480
gaagggggccg tattcgtttc tgcattctaca actattcgga gttctatccc gtggtgacga      540
gcaatccgat gctcaaggac tggcttccct gcgtgtaggc aaaggcgaat gctcatttgg      600
gcagccaagg acggactctt cggttatgcc ctgtccaggc cgacgatcgc aaaccgctgg      660
ccatcgcaat ggacaacttc gaagcaagcc cgaatgggcc gatttcaaaa tcgtaccacc      720
tgcaggagat cccatcctac tacctgctct ccacagcaga tcagcacgaa cgacgcccgt      780
ctccgcgtga ggattccatt cgggcagcct atgaagccac attcgccaca gccagcagtc      840
tgcagcactg gctgccgaat tgggtgtgga tgcgcctgcg ctacaggca      889

```

(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

acgacgtact ggccaatata gaagagcgcg acaggatcga ctccacacgg ccgtttcacc 60

tttgagacag	gctgaggatg	ctttagtgtc	ggacaatttc	atatgaccat	tccgcagcag	120
aaggcatggt	tgctggagcg	ttttcagaag	tgaccggttc	atgattccaa	tagaaaataga	180
cagcggatcg	ggattttgctt	cgggtgtggtg	aatgctattc	gtcatgccga	gaaagcaatt	240
ggagaaaagc	tccgataagc	tttactgcct	gggcgatatt	gtacacaata	cgctgaggtc	300
gaacgggttag	gaaagaaagg	attggagacg	atcgattacg	atgtttttcc	cgactgcgtg	360
gggcaaagg	actggttgcg	gcccattggag	aactcccga	atctatcgga	tggcaggaga	420
aaatggggta	acgatcatag	agccacctgt	cctgttgtac	tccgcttgca	aaacaaaatc	480
aaatcacgat	cgaagctacg	cgcagcctcg	gcgacacaagt	cgatcatctat	ggcaaaagag	540
gcatgcgga	gtaaacgggtc	tggtcgggca	gaccgaagga	acggctatgt	catagagagc	600
gaggaggagc	tggacaaaat	agattacaca	cgctctgcat	tctcttttcc	caaacgacca	660
agagcctgga	gggattcgga	cagatctcga	cagcatcagc	acacgtatgc	agccgggtgt	720
aactttcgag	catcagatac	catctgtcgc	caagtggcca	atcgaatccc	gcataatcgga	780
gcttcgccac	tgcacacgaa	ctggtgttct	tcgtagccgg	agagaaaagc	tccacgggaa	840
ggtaactcttc	gggcattgtc	tggcagccaa	tccgcgcagt	attttatttc	ctccccggag	900
gtcatcgtgc	cgatattgct	gggtccctctg	cggccagcat	aggcatctgc	ggagccacct	960
ctacgccccg	atggcagatg	aagagggtggc	atcgcacatc	aaggctctat	tgtaaaactcg	1020
gccgccaccg	caagtggtcg	ctatatcctc	ctttataatg	catcccctga	taggtgcgtt	1080
gggtgcgata	cgcgccacat	tgtacggagc	ggagtgtacc	aaataagcag	gactacattc	1140
ttggccgcat	cggttcggta	gctgacctgt	gaatccgctt	caggaaattg	cccgcacgca	1200
tgatgtgatc	caactgtctc	cacttccctt	atacagagtt	gtcccgggag	ggatctgaga	1260
gagaggacag	cccggagggt	gtacaactcc	cctgtcccgg	ctttgccggc	ttcgggcaga	1320
acctaccggc	ccgtaagggtc	tcgatcagag	gggattcgtc	cggattgctg	ttaggtctcc	1380
catgatcagg	atgaagggat	tgtgccggcg	gcttagtatc	tattgcattt	cgttctcagc	1440
agagtggcgg	catcgtgccg	ataggcatcc	attggcgcac	acctcctctg	cgagagggga	1500
agtggc						1506

(2) INFORMATION FOR SEQ ID NO:810

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1100 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1100

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

ttgacgtgta	ctgaaaaaag	ttgacagttg	ggcgggatgc	aaccagtatc	attatgggca	60
aacattttaa	caactttgaa	cgccttagca	tccttgagat	tacctctcgg	ggtcagatag	120
caaagtagcc	attgagcaga	aatatggcta	agtcattggtc	tcatttcgctc	ttggcttagt	180
aaatttggac	tcgaagtaaa	gttcatccgg	tcccaatgaa	agtgtcccaa	tccccccaga	240
gtgagtaccc	ctgaatgaaa	aagaagagtt	agagcagcta	cgtaaagaaa	atcggtcctc	300
aagagtcgtc	tcaagcgaga	agaactaggg	catcaagcct	acagctactt	gtagagttgg	360
cagaagaaac	ctacggcatt	cagatacgaa	aaactccgaa	gccaagtagt	tcaccgttta	420
tcagagccgg	agcctaggta	tctattgctc	gactctgcga	actgcttggc	tttagccgtc	480
aggcctttta	aaacgtcatc	tcaacgattt	agcacaacat	gaggaggatg	tcctatgcat	540
agtatcatcc	aatattgttg	gcacttaaga	caagcagagc	acctacctaa	gccggcttcc	600
gagagctcat	ggtgctttgt	cagcaatact	tcggcccaag	ttcacgcttg	ggcgcgatcg	660
ctttttgcgc	ctactcagac	gccatgtatg	atgctgcgca	aacgggtctgt	gcgcctcctcg	720
acaaccaact	ctcggatagg	ctctacaagt	atgaagacct	gctcaataga	gagcctaagt	780
ttgtcctcaa	agaccctggg	aactccttgt	agcagacatc	acctacgtgg	cttccaagat	840
gggtttgcct	atctctccct	actgaccgat	gcctatagtc	gcgtatcgta	gggtattgct	900
tacatccgac	cctggaagtt	gaaggctgtt	taatgctctg	catcaagcct	ttgctttcta	960
cgatcaacat	caaattgata	gaccaatatg	attcatcata	gcgaccgagg	cattcagtat	1020
gccggtaagg	ttacaccgat	ctgtttgcatg	ggcgaggctg	gcgcatcagt	atgactcaac	1080

gggagatcct ctgcataatg

1100

(2) INFORMATION FOR SEQ ID NO:811

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 391 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...391

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

tcgactctnn	aggatcccct	gataattgat	ggaaaattcc	acatttcttc	agaaatttac	60
acntatggta	actttttgat	aattatagtc	ttacacccgc	tctttttgga	tggtcatctc	120
atttcttcta	aacctattta	ttgatacttc	tcccatttct	ccttgaacca	cgcagcaatc	180
ggaactctgt	ccacgacagg	tcaagcacgg	tcttgccatc	cctttcctcc	ctgcccacct	240
tcaaggtacc	ttctcaacgg	tgaacgaacg	cttgacttca	tccgaaaaca	gtttcccgta	300
acgacaagga	cttttccttg	tagcagttca	tcagtatgtc	tctggataat	ccgaccgaac	360
ggcaaatcct	ttctattctg	aggaactcgg	c			391

(2) INFORMATION FOR SEQ ID NO:812

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2476 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2476

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

atatgattca	tcatagcgac	cgaggcattc	agtatgccgg	taagagttaa	ccgatctgtt	60
gcatgggcga	ggctggcgca	tcagcatgac	tcagacggag	atcctctgca	taatgcattg	120
gctgagcgga	tgaacaatac	gctcaagact	cgtggcacat	ctcctcttcg	aagcagtctt	180
ttgatcaagc	actccttctg	tagaacaagc	cgtgcgcatg	tacaacgagg	cgcgtccaca	240
tcaagtctag	gggcgaaaac	gcctatgcaa	gtcattgcgc	cagagtctaa	aaatcgttac	300
tggcaaggat	cgaacattgg	ccggagattg	cccccgagct	atacgaagga	tgaatgtcag	360
acaaagagct	aactttgctc	gtgtcaaccg	aattagactt	aagggtaagg	ggtgtcaacc	420
taaagtagaa	ttatagaaag	accagtaaac	caattgtaga	actatcccg	ccaactgtca	480
acttttttca	tacacgtcaa	gcacaattgc	ggatcgaaaa	aagatggttc	gagaaaaaat	540
aaaactcgag	ccaaaagcaa	aaaaatctcg	cgcgtaaaaga	ttttcctttg	gttcgagttt	600

ttgagat	tttt	aggetc	ggta	attctcc	gtc	tttcgg	ccca	aaaaca	acat	acgact	ttttc	660
tcagtac	acg	tcacaat	caa	gggaaat	cgg	gaaggat	cag	tcgccc	ggat	agggat	ctgc	720
agaagg	agga	ggcggtc	gac	tccccat	agt	ttgttgg	ggc	gcggtcc	cat	cttcag	ctcc	780
aaaagc	cgcc	ttgggct	atg	tcgctat	gtt	ggaacc	atgc	tttatcc	aag	gtttccc	ggt	840
gagcac	ggcc	ttttgg	atg	atttgt	tttc	agctcc	ggca	ccttgg	cgat	gatcgt	aagg	900
tggttg	cctc	caccgag	atc	gatcg	ttatc	tgctgaa	aaaa	aggact	accg	atcacat	aga	960
ccggtaa	acc	cgggtgt	gacg	gataga	atcc	catcat	cga	aagacg	gcga	acgcact	cag	1020
ccctcc	acct	cttcgt	ctcc	ggggact	ccc	atcagat	cgt	ttcgga	acca	ttcgtt	taaa	1080
gctcat	ggat	caacttc	ctgc	gttcgcc	atg	gctgacc	ggc	atagaca	aata	aatagg	gtat	1140
atgcagg	ctc	ggctcat	tgg	ccatgg	aaaa	ctgtcc	acat	tgctgt	ctg	gtcggg	cagc	1200
ttggaat	aaa	aattga	actt	ccatgact	ca	tcggtgt	gcg	gaaagt	ctga	tccaaga	aac	1260
tgacaa	actg	ttccg	cccat	ccatca	aggc	aatcag	atca	tgaggg	ttgt	gctgtac	atc	1320
ccacgata	aag	tgtaag	catt	gttctc	gtca	taatagt	ctc	gtgcac	ccgg	gtccat	caa	1380
attcgta	atc	gaagggt	ctgt	atgaag	cgtc	ccttct	catc	ctggg	atgaa	agaatccc	gt	1440
ctccga	attg	taaagt	gtc	ggtagt	cgta	ctcctac	gcga	gaaatt	caag	cgcttc	gtgc	1500
tcgtgg	ccgg	agaact	gtgc	aatcgg	ctaa	ggcacca	aata	atcgta	aagca	atagca	aggc	1560
taacgg	ctct	gcctg	ccgt	tctccc	aaga	gtgtat	ggta	gggtc	ggttt	cctttt	gtcc	1620
tgtggc	aatg	cggggt	tagt	gccttt	ctca	tcgaaaa	att	gatcga	tgtg	cctttg	ggca	1680
tacgcg	cca	aggtgc	gtac	gtcttc	ctcg	ccatcc	tttt	ttggc	taccg	tatacg	cctc	1740
attcaa	attg	aaaccg	gtaa	gacctt	ggca	taggcat	cgg	caagca	tggc	tatagc	atga	1800
ttgccat	tca	tacatg	gctg	tcgcct	gtca	cttcgg	gga	ggtagg	caac	catttct	cccc	1860
tgtaag	caaa	gccata	cgaa	tgtagg	aatt	gaccat	gtcg	gattcc	atct	cggtcc	caaa	1920
agaata	cgca	ggggat	gtac	agcccc	atag	gtgtccc	aca	ccaatc	gtct	gtataga	aaag	1980
gaatg	cccc	atccgg	atgc	acagca	tgc	ttcggc	actg	tagaa	atgac	catcct	ccga	2040
gatatt	gatc	atccgt	ttcta	tgtac	gataa	aggctg	ggtg	agaata	cctg	tcgctg	aaga	2100
atcgta	ctcc	ctcgat	ctgc	actttg	ccca	gtgttt	tgtt	ccattc	gttc	cgcccc	cttt	2160
ggacacc	act	tccacg	ttgt	aagcct	gtat	ttcctg	acga	agattt	ttttt	ggctt	gtgcc	2220
acactga	tat	aggaa	tacc	atagcg	aagg	aagaat	ccgt	tccggc	ccaga	tcgtag	ttca	2280
gcacga	gagt	tttgccc	gtt	acctgc	ccctt	attccag	atg	tactcg	ccctt	tttccg	aacg	2340
gcgagc	gtac	gtacagg	ctg	ctgctc	cgtc	tccatat	aga	caaata	actcg	cgta	ctgtcc	2400
taagata	gcg	atagcc	ggat	atgac	attac	cttcgg	cagt	caattccc	ctt	tctcag	agtg	2460
aacaac	gagg	taatgc										2476

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...686

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

acagccg	ctg	catagac	agg	accggcc	caga	cagccgc	gac	cggcttc	gctg	caaccgc	att	60
cacgca	agtc	atcg	tctatg	tagcgag	aga	gcagcat	ggg	aagaa	attag	aacatg	ctta	120
ctacac	gttt	caagg	cttgg	aggaatt	ctc	cacttc	ctcc	tcgg	tattgt	agagag	caaaa	180
ggaggc	gcga	gccgtg	catt	gagtc	ccatg	ctttc	gagta	gcggt	tcggc	acagt	gatgt	240
ccggtc	ggat	ggctata	cccc	agccg	atcga	gcagcat	gcc	gaggtc	atag	ggataa	tgtc	300
ccctata	aagg	aaagag	agca	caccg	ctctt	gtgttc	ggct	tctcg	atgat	acgggc	attg	360
gggaa	agctc	tcacgc	cttc	ggtgg	ccatg	cgagg	agttt	gtcttc	catgt	gcggct	atgg	420
cttccaa	aacc	caatc	cttcg	agtag	tcgag	agctgt	ggcc	aaagc	cg	tg	gg	480
gtccgg	cgtg	cggctt	cga	cttat	aggc	aattc	g	gt	gt	ctt	gt	540
ccttgg	cgat	catct	ctccg	ccacc	gtgg	agggg	g	gt	gt	gt	gt	600
ccatca	atac	gcctatt	ctt	gtgg	tgccg	agact	tttgg	ccgg	aga	agg	cgtag	660

cgttccaact tccgacatct accggc

686

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 713 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

aaatccacta	cgtattcttc	tgtaatgcaa	atgccgttta	cacgaatacc	tcgcgaaaat	60
ccaccaaatg	aggagatgta	aacaagccta	cccgcatacg	gcaacttgta	agatagcagc	120
cagtgtagag	gcggtagagc	ctttgcctta	gtaccggcca	catgtatcgt	tcggtaagcc	180
ttgtggggat	gtcccacacg	cggctctatg	tctctacggt	accgagccc	ggtttatatg	240
cactgccctt	tggtgttgga	agacaggggt	agcggtaaag	agataccgga	tagctcttcg	300
taagtcatca	tgccctgccg	atgatgggtc	gctctcggtc	gggccaacgg	aaacgatagc	360
gataccgact	cccaattctt	tttccaagaa	gggatatagt	cgctaaattc	tttggggaaa	420
tcagcctcgg	aaaccacatt	ttcattgact	gctgcccaacc	ggggagttcc	ttgtaaacgg	480
gcgttacccc	tctgtcagat	ggaaggggaa	attgcgtgtc	tccttgccgt	ctatctcgtt	540
gccacgcaag	ccttgatcgt	ggggaaaaga	tccatgacat	cgcttttctc	atgatcagct	600
tggtcacacc	attcaacata	atggtgtagc	gcaaggcacg	aggtctatcc	agccgcaccg	660
gcgtttgcgt	cccgctcacg	agccgattcg	cgttccaact	tacagagctt	ggc	713

(2) INFORMATION FOR SEQ ID NO:815

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

gctgaaaaag	gccgattcgg	gaggtgataa	aacaaaggca	cccaccagtc	tataggggaac	60
tcgatgggtg	ccttgactct	ttgaggaggc	tatggaaggt	tattcctctt	tatttgatcat	120
agggatattc	ttgctttgtc	cgaacaagcg	ggcggtatg	acggatacgg	gcgggatgga	180
accggcctga	tgagccggga	gtatatgtgg	catattcatt	gttatttggt	cgtaaactgt	240
ttgtcatatc	gttctatatc	aatcctataa	gcacttttag	caaagagttt	tatatctcga	300

taggagcatt	cttggccggc	aaatatagta	aaaaccatca	acctggggaa	tcgaatttca	360
catcgcaaat	cttctccact	tcggtcggct	caggactatt	tgtttccaga	agaattttca	420
ctgtcaggaa	aaaagaatcg	gttatttccg	tcggattatt	tggtcggtat	ggaattatta	480
ctacttttgc	cctgggtaag	tcctatacgg	catgtccct	ttgattcccc	cagggttgt	540
cgcagcaagg	gtattaggtc	gtagcggcgc	gatatagcca	gcttaccctc	cgcctcttta	600
gctcagttgg	ccagagcacg	tgatttghta	tctcgggtcg	ttggttcgaa	tccgacaaga	660
ggctcgaaaa	gcattgcacc	gattcttcag	cttggtatga	gaagtcggtg	cagtcttttt	720
ttactgttcc	taatctttca	acaccttggt	tccgttccgg	atttctaaag	ggctgaaagg	780
aaaacgcagt	ttttattgcc	ttcgtttggt	gcggataatc	cttatttttg	tatcatttaa	840
gggataataa	agttcatgtc	aaggaaaaac	cataccact	attgttgctc	tggtatgacag	900
ctctccttct	gatcgtatgt	ttgcctctgg	aggccaacgg	aatcgcgct	ttaccgtggt	960
tatcgatgcc	cggacacgga	gacatgattc	gggggcagtc	ggtaatggtt	tacgagagaa	1020
agacatcaat	ttggcgtggc	tttgctgtgt	ggacagctga	tcaagagcaa	gcattcgggtg	1080
tgaaagtgtc	ttatacccg	gagaaggatt	tcttcgttac	cctgatggac	gtgccgaata	1140
tgccaataaa	aacaatgccg	acctttttat	cagtatcatg	tcaattcgca	agagcgaggt	1200
catggaggct	atggtaccga	gaccttghta	tgggacatga	acgtaacagt	aaaaatatgg	1260
cggtagtcca	gcgtagaatg	ccgtcatatt	gatggagaaa	gactatagga	ccgtttataa	1320
aggtttgacc	cccgttctgc	cgagagttat	atcatgttcg	aactgatgca	gatacgtatc	1380
aggatcagag	catcaaacg	gcccaacaga	tccaaaagg	attgtggcca	aggggcgtca	1440
tgataggggg	gtgaagctcg	gcaatttggc	gtactcgtgt	tttctgccat	gccgagcgtt	1500
ctcgtcgagc	tggtctttaa	agcaatccgg	cggaggctcg	ttatttgggg	tcggaagccg	1560
ggcgtgacaa	ttggcttcgg	ctatcgcccc	aggatttgcc	cgatacaaag	aggattagac	1620
agacgttccg	gtaagggtgc	cgagccccga	ccacaagcta	ccgaggagag	gataagggtg	1680
aagtcgaacc	agaagacaat	ggtatttctt	cgggtgcagat	atgtctgacg	gcaaggaaaag	1740
tatagctccc	aagggcgatg	ctgtaagccg	gatgaggtg	ctcattccgc	gaagaaaacc	1800
tataaaatac	agacctgtct	tccacgacga	agctcaaaaa	tggcgataag	cgattgaaag	1860
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(2) INFORMATION FOR SEQ ID NO:816

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6272 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6272

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

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(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2263 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2263

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

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ttgcgatcca	aacgcagcat	tcgtcaatgg	tcatagctta	cctcccagtc	tgtatcgtaa	1020
gtcacttgaa	tccgcattcc	ctcacgagct	gcatactctc	agcggctttg	cttcccgtgt	1080
ggtgaggaga	tcgcccgtga	tggctgcatt	gatacctata	tatatagttt	gcgctgaacg	1140
gcagggtcta	gttgtgccc	tcctcccga	aagcgagaaa	agctcgagga	ttgatgagcc	1200
ggaacagtgc	cacagtcgtg	aggtatcctc	ttcgcttaga	ggcagagtc	tctccagcgg	1260
agtgcggggg	atcgctgcag	gatattgatc	gggatggagt	agacattgat	gctgtgcagg	1320

tagaagcaaaa	ttcgatccgc	tgtcccatcg	tctcccccat	gccgatgatt	ccccactgca	1380
tacacgcatt	cccacacggc	gtgcagctcg	aatgggtggcg	acttttcgtc	ctgcgtgtgc	1440
gtactgcaca	gggaggggaa	gaaactcggg	ccgtctccat	attgcagtg	taggtgggtca	1500
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tttgatgtcg	ttcgttgctt	gatggcacga	taactttcgg	ccatctgtcg	tatctcgtca	1620
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agcggcctgc	tcggcacaaa	ccgcgccgga	aagaatccgt	atttctctat	cgaagcggca	1740
taatggcggc	tttgagcaca	ccattacagt	cttcgggaca	gttgccgctc	ttggcgttga	1800
tgatggagca	ggttcgaact	tatcgcccat	gaaataccgg	gtgatccgat	gtgcagcctc	1860
gtgagtgctt	ccttatcggc	agaggaggcc	agcagaagg	cttcctcaag	gttagttcgc	1920
caccgtttat	cagtctgttt	tcgatcgtct	gaatcatata	gggaacggag	cagatccttt	1980
cctgtctgca	tcgcgcagaa	aagtagaaaa	agctccggca	atagaaacta	atcggcccac	2040
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agcctccgga	agcgtcggcc	ttaacagacg	tatattactt	cgctacccgc	tccagcactt	2160
aaccatggag	agcataacga	gcatggacaa	tgcacatgca	caggtaatac	aatccatgta	2220
gcagagatag	aaagcgattc	gtacagaatc	ataccacgaa	cag		2263

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2159 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2159

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

ttgcctcgca	ataccagcgt	cttgaacacc	tgcctgacat	cctcgcccac	tgctctgcc	60
catggacggc	cgagagggtc	ctctcgtcg	gtcgtaggg	atcagttcgt	acgttatatg	120
cgccgcatcc	agaaggcgcg	ccacattgtc	ttgggcatct	ttccggtcac	ttccggcgaa	180
aacgattgag	gataaacgga	taacggcata	gccgaagccc	accacaaaga	gccatccgag	240
tacagatccc	agaccttagt	cccttcgtgt	ccgattttca	tcagcccga	ggcacgaaag	300
tcagacatat	cagcaaggca	ctccacgagc	cgttttctgt	cataagcctg	cataacgcac	360
agccgtgggc	cgatcgatac	gcccattgtt	gtgcccataa	agacggcact	ctgctctgcc	420
agagcgaaac	aaaatgccac	gtccactgta	tatggaagaa	aagctccaaa	ccggcagggtc	480
tgctttccga	ttgaaatcct	ccagtagcat	gccgggtgaa	gcagctgcga	aaatcaggac	540
cccaaccaat	agagatagaa	acggggcctc	aacccttgcc	tcttgctgat	cgagtttttt	600
cgtgagatgg	ttccttcata	gcttctcgta	tgacaatttc	ggttcgattt	gtttaatacc	660
aacgcctccc	gtgggtatca	tgcctcgcg	acgatagccc	tgcgactctt	ataagatcaa	720
ttcggtcaga	gagccaagg	agggagtgag	gcaaaggcac	tctccagcgt	gcattgtccg	780
accagctacg	ggcacaattg	atcacccgcg	catggcagaa	gatcaggatg	gaggataacc	840
ggcagcttct	ttttccagga	tgaagtcccg	cacgcgttcg	aatgctctcg	ttgcgattcg	900
ccgcccggata	cgggttcgtc	tatgtagcgg	cgaaaaatgc	ttctatgtct	gtcgtgtcca	960
gaattttctt	ccagggtttg	cttcccagtc	gccgaagttc	atctccttca	gccggctcgt	1020
tcggatggct	cgggatagcc	gcaaaaggcc	gccaacttgg	ccgcacgctg	cagagggcgg	1080
taaagaccgc	ctcgggatcg	aggcctttga	gacgggcaca	agccgcccag	cctcctcttc	1140
gaaggtgtct	cgaacgtcca	catcgggtga	tccgtatgag	gctcattgcc	attgaacagc	1200
accgaggtgt	ggcgcatcag	atatatttca	tcagtggatt	attaggggtat	cggtcagaaa	1260
aaagccttcc	gaatcgacaa	agatagtaga	aagagagtgc	atctgaaaac	agatcattcg	1320
aggttatcga	tcaactgaaa	aggcaggagt	tgttttgcgt	tttgggttcg	gaattacctg	1380
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tccgtagtca	acggttcctc	cttatatcag	aggttaaaag	atatgggtacg	ctcatcggga	1620

gctgattggc	ttagtaggtg	agactttctt	aagagaccta	tcggcactac	aggaagttca	1680
tggcacacaa	ggcaaaggag	gcaatcttcg	cagacggact	catatcaaaa	ggatgaaacg	1740
acttttccat	acgacaacca	aataccgtct	acggtagacg	aatgcaaacc	caatatgagg	1800
ccatcaatca	atcgaatgac	agcttttggg	caatatatta	tgcataattt	gattcgcgtt	1860
taaggaaaag	tgcataatatt	tgcgattgtg	gtattttctt	cggtttctat	ggaattttgt	1920
ctcccaagaa	gactttataa	tgcataaata	cagaaggggt	ctacacagta	aaatcatatt	1980
ctaatttcat	caaaatgaaa	aacttgaaca	gtttgtttcg	attgctcttt	gctcttcctt	2040
attaggagga	atggcattgc	gcagcagaca	gagttgggac	gcaatccgaa	tgtgagattg	2100
ctcgaatcac	tcagcaatcg	gtgacaaagg	ttcagttccg	tatggacaac	ctcaagtca	2159

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3694 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3694

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

gcagagcggt	tctatcctct	gtgaatgcga	tcgcagcggt	tcggaagagt	agtctgaccg	60
ttgctaccca	agaaccagaa	gctatagcat	ctgtctctcg	atcaagcatc	gttcgcgcag	120
atatacgacc	gatatgacga	ggtcataatg	tcgttctgcc	cgatcagcga	aaaagcggag	180
aaaaaaaaatc	gacgataaca	gccggtagag	actggtgcat	gggagtttca	ttgaactctt	240
ttgctcagag	ctgattctta	gtgccttttg	gaaagatcaa	acctccggtg	tatgacatcg	300
agcaaacaga	aatttcccca	agtttccatt	agagaagtac	tccttcctcg	tcaaataggc	360
gagaaataag	aaacgattgt	cggctgtttc	ttctccctgc	acgatgcagg	acgcgattgt	420
cagctgattc	ttgctccctg	ccgatgcagg	acgcgattgt	cagctgattc	ttgctccctg	480
cacgatgcag	acgcgattgt	cagctgattc	ttgcttcctg	cacgatgcag	gacgcgattt	540
cagctgattc	tgctcccatc	aatgcgctaa	ctatcagcta	tttgcaacat	tttataggac	600
tttcattgaa	gtcttttgcc	gcagagctga	ttcttaatgt	ttttcaggaa	agatcaaacc	660
tcaagatatg	gctaccaagc	aaacagaatt	tccccaaagt	tccatcagag	gtataacttga	720
gctttgaaga	gattgatgaa	atacttccct	tcttcgtcaa	atcaatgctt	gtgtctgtct	780
tgatgatatg	aggaggtgga	aggttattgt	gcaacggtct	ccggtaagga	gaaccgttcg	840
aaagacctct	tgcaaatacc	gactgcaaac	cgccgattat	acattataat	tatagcctta	900
ggccaggaag	taaaccatca	gacctacgac	cccacataga	agagagcata	aggaatggca	960
gaacggagga	tgetgccttc	tcgcccgtgt	ggttgcaaga	tgccgtagca	atggcaatgc	1020
tctgtggcga	atgatctttc	ctcccgtagc	tcctgccgta	ttggctgcag	ccagccacgg	1080
gcatccacac	cgatctgatg	agctactcct	gcctgcaact	tgccgaaagg	atattggacg	1140
aagtatcgct	acctgtgaca	aaggttcccta	cggcactatg	agcggagcaa	acaggggata	1200
gagcgttccg	gtggcctcgg	ccaatccgta	gcgatgacaa	gtatcattcc	gctataagtc	1260
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gagaacccgg	gtttaaatcc	cagactgata	ggatggctgc	cggatatagct	actgccgtac	2040

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gcttttgctt	ggcttatgcc	ggtaaattgt	ttcttgatga	tctcgatttt	accggatcga	2160
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ccgagggcag	gagctgcgaa	taagctacca	atgctgcaca	aacaagtgcc	agaacagcac	2340
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gctcgttctc	tgaagaacg	cttggaatct	gaaggttaac	ccctattttg	gcagaaaacg	3060
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acgaattctt	tcaagattgt	cgcgtaaaaa	ctttggcgag	gggagcaatc	tgctcttctt	3360
cgctaatttt	catggtatac	tcttcattcc	gaagtaaagg	gtatcaccga	actgcacaag	3420
gatcaggaca	cattcttttg	cgtgtagggt	cgggtatggt	atgggacgac	ttcgtcgcta	3480
tgccgtggag	aataactatt	atggtataga	gaacctctct	ctcattccgg	ccaagtggga	3540
gcacggtctg	tccaaaacat	cggagcctat	ggagttagat	atctcagctg	atcgaggcgg	3600
ttcatgctcg	tcattaccga	acaggaaatc	ccgtgtattt	cgcaatgagg	actgcagata	3660
cgcatacaga	tacagatctt	caaagaaccc	ggac			3694

(2) INFORMATION FOR SEQ ID NO:820

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3589 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3589

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

gaaaaactcc	aaaatgctcg	ttatccaaac	caattaatcg	ggcgaatcat	tagaatctca	60
cacatagggc	attttataaa	gaggggtgtg	cagaacgtag	ttggacacac	cctcttctct	120
tgtttcagaa	aggtagaggt	gcggttttcag	cggatagggt	cgagtgggtc	tgtaaagggtg	180
gatatgtttg	tatcacggct	gtagaactgc	ataccgcggc	ctctgctgtt	ttgccccctc	240
tccttcttcc	ggcacttcgg	gtttgccgcg	atcctcaagt	actcattccg	tttttccatt	300
ataaaacatc	tttttatcga	tcttgacgat	acgctttggg	acattatcat	aataataaga	360
gtagcctcga	agagtgtgat	catacacatg	ccgggataga	tatttcgact	cgttcgaaac	420
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atcgataagc	gacccttact	ttggagcggt	tcagaagacc	tttcaccgga	tatctcactt	540
gtctgatgaa	caaatactag	catggaatgc	agagtctctg	tccattaccg	gcggaaaact	600
cgactttgcc	ctcatgctct	ggaagtgtatg	gagtatcgca	ccgttactac	aagggtttata	660
tccttagcaa	cggttttcga	gaaatcagca	tgccaaactg	accaatagtg	gtttggcacc	720
ctatattgac	cgagtattct	atccgaagat	gcgggtatca	acaagccaaa	caaaaagata	780
ttcgcttcgc	actcgtcaaa	gccaaagcca	gaaagacgga	aagcatcatg	atagagatag	840
ctgggaagcc	gatatagtcg	gggcggccaa	tgccggtctg	gctctgtctg	gtataacccg	900

aacagacata	tcttacctga	tgacgggtgta	cagcaccccat	gcatattatt	tcctcttttgt	960
ccgagctgat	gcagatatcc	gactctcttg	cgccgttttg	ttattgacaa	agaggggcaca	1020
aacctcatcc	cggttattcg	gatgcataac	ggtacacctt	tcttatcacc	tgtttggtatc	1080
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tcatgagaac	cgccttatcg	atcaagctct	tgttgggcat	tgactataac	cgaatcagaa	1200
aatgaaaggg	aaaaagtttg	acgtccattg	gatgtcgaag	cctctcgaag	ctgaaatctc	1260
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ctctacagcg	tagctcgaaa	gctgtacggg	atagcccgtt	atcctctacg	gtgtaccgcc	1560
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aacggaataa	cctataactc	ccaagatctt	agtgttaacc	cgctaatacg	ggaacgaata	1740
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actccaccta	cattagttct	cggaagggaa	caaagccggc	caatcacgtt	tctaatacaag	1860
gtctaccaaa	cgatcggggc	tatgccgtgc	tgccggagat	atgcgttggt	tggtcgaaat	1920
gcttgagccc	aaaaaaaccg	cgatgtgctg	agagtggcga	aggatgaagt	gcttcgagaa	1980
tgagatgaca	gcgaggatcg	atcatggcta	ttttcggcgg	gcataacttc	cccagaggag	2040
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cgggagcgaa	tgccgtcacg	tagcgcaagg	cttcccctgg	cggttgtccc	atctatagaa	3060
attgcaaaca	gtgctttggg	tcaattccat	acgctgccga	agagggctac	agtatagccg	3120
agggtattgc	tgatctactg	ttgagaatac	ggatatagcc	accggaagca	gccagaccgg	3180
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tccgccatta	gcgaccccca	accttgatgt	gggccttatt	ggccatcagc	agacggcatc	3480
ggcaggtaaa	gtaagggtag	cacctgctg	aacgacaagg	ctgtcgagag	caagggtggga	3540
cgttgtgctc	caaatatcgg	atcccgatcg	ataaccaagc	cggtcactt		3589

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2955 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2955

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

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gaatcgggag	tagcccgatg	gcatatatac	aactacttcg	agcacaagga	cagcctcttc	2880
agggctgtgc	tcaacctctc	ttggatgaat	tcgggcggat	aatgggaggt	cacaacagtg	2940
gcaccattat	ggacg					2955

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 861 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...861

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

```

gggtatcgga ctctgtagca tcaatctcgg agaagtagac gaagaaaaag ggattatcaa      60
aaggctttgc aagagtatgc caccgcatac aaactgatga acagttgtcc gatcgatggc      120
actggctgaa ttctgtatc cccgatggacg tatcaatctc aaacaaggta acgaaaggct      180
ctaccagcat ttcatctctt ggccgaaggg actgcgaaag aaattaattc gacttcacat      240
ctgatgaaat atacaatctt caatacgaga atctcgagcg taaaaaagaa tacaacaagc      300
cctcgaagca ttctgtctga gcaagacggt gagcgacagc atgccattgc gcacaaggct      360
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ttttgccctt tcatctcgat tcttttgatt tctgttctga catatgcata ccgtcaggga      540
agaagcataa caagctgatc aaagagacgg ataaacttcg ctccggcttt tcaccgggat      600
tacacacgaa tttcgtacgc ctatcacctg catacaagtt tgaatgagaa aatgagttca      660
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gccatattgt gaattggtga accagctgtt ggatattttg aagatcagaa gcgagtatcc      780
acgccgaatg gcgcatggcg acatcgtctc ttcgtacaga tctcatcgat cgtgcacata      840
cgcacaggct caagacatac c

```

(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4324 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4324

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

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tcttgatcgt cactttttca gaatctgaac gctttcgggtg cttacttgcg attcgtcaat      240
gatacagcat tggcgatcag ccccttttagc tgggcaatct tcgtttcgag gattcctggg      300
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gtcgagtaca tttctaccgt aaggccatag cgctcttcga tcagttcggg atccgaagg      1080
attcgggcgt ttcaggatcg agggggagcg agccggtcag caaaggatgc cgagcgattc      1140

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ggcaagaaga	cgggtcagtg	gatgaagagc	caggcgatac	ctacctgctt	tcgattcttg	1200
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tttc						4324

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2333 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2333

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

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(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 999 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

```

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tggtggtgtc gcaaactctt tgtttataaa gatggattaa atttaggaac aaagtactta      540
aacatatcac tgacgacgag aaaaagagga gggtaaagct attcttagag caactcgaat      600
aatgaatgac tacgcaaacc aagctcgtaa tgcagttgtg gtgagccaga aaaagtattg      660
atcgtttttg atgatagact gagcagaaag cctgtcggtt ctataccgta ggtgaaaagg      720
agcaggcaaa cattaaaaag aacttgatca gtaccaagta aaatatattg taggggatga      780
tgctcagatt atagcgtagc cgatgcttat cgtgatgcga tgaattacct tgaaggcaa      840
cacttgctga ttttgacagag ggcgaaagag ataatgactt ttcagaagcc ttcgagtgcg      900
aggaaaaaga acctcaagag aaaaaatcta aaaagggaaa gacaaggcca cttctgctca      960
gaatctcttt gcagaacacc gatgatcaat aaagaatcg      999

```

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

```

tacgcagttg gttttcaccc gtgattcggc acctgccgaa ctatgcgacg cgccgaagac      60
ttgggacgtg agtgggtgat ccgtgccacg ggcaccgtat ggagcgctcc agcaaaaatc      120
cgaatatccc caccggcgat atagagaagc agtcggagaa atggatgtgc tgaaccgctc      180
cgaagtgccg cttttcccat cgaagacgag accgacggag gcgatgacct ccgcatgaaa      240
tategtacct cgacctgcgc cgccactgcg tgcgtcccaa tatggaactg cgccccggat      300
ggctctggag gtgaggaagt atctcgacgg cgagggattc ctcaagtaga gacccccatg      360
ctgatcaagt ccacgcggga ggggtgccgc gatttgcgt accctctcgg atgaatcccg      420
gccagttcta cgtctctccc cgctgcctca gaccttcaag cagctactga tggtaagcgg      480
cttcgatcgc atttccagat cgtgaagtgc ttccgcgacg aagaccnccg cgccgaccgc      540
agcctgagtt tacgcagatc gactggcaan atgagctttc gtggagcaga agatgtgctg      600
tccaccttcg aaggtatggc caagcacctc ttccgtacat ccgtcacgtg gagatttcgg      660
aagccttccc c      671

```

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 833 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

gccggcatgt	aacagaaaag	ctgttggata	aactggcaaa	gtattcattt	tctataattc	60
atgtcaggat	atcccaagag	aaaaggcaag	actctatgag	atcaaataatg	tagaaacaga	120
acatggcgca	atagtttgtt	gtactggcaa	tcaaagaaaa	tctcttactg	gaaacagggt	180
tggatggtga	aggtctatgt	ttggctttca	gaagattggt	gacttcctaa	tggctgatgc	240
atthttcaaaa	gcaaaatgaa	agatagtgcg	aaagtagatt	ttgtcataga	gaagcagaat	300
gtcagcaata	tcccctgtac	aagcgttttc	tcgtaggcctt	atttcggagt	ggcccttat	360
gccagagttt	ttggataggg	atttacttgt	accagggaga	cgttggttaga	tattttgttg	420
gaaagtctgc	attatcgatc	agaaacaata	ggttggtatt	cagttggatg	gtaaaagaac	480
aggttttctc	ttaaggatat	tgcgtgattt	tataaacata	ttgccggaag	atgtatttct	540
atggctcaca	gtaggttgat	gaatgcatca	ttggttaata	gagataagaa	tggacaacgt	600
ctgtgaattc	tatatatgac	tccttcttat	ctagtaagta	gatgattttc	ttgaaattga	660
aatcacagag	aataacaatc	ggaaattcta	atacttctag	gatggatgtg	tgtatcaacg	720
catcctttta	tcanggtaga	gccgttgaga	aaattgggtg	atthggttga	taaggcacca	780
gagtttacca	gaagcttacg	tttggttgct	tcatgccatg	atatgtatgt	ggg	833

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3378 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3378

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

gcacattgct	gacgtgggct	atcgaaacga	ttttggtacg	ttcgttcaga	gagaccggaa	60
atgctccaca	tccagttcgc	ccgattcggg	caaccggaca	ctctgagccg	agcaccggta	120
cgttcggcca	aaagtthcca	tgggacgtat	tcgaatgggt	ttcgagggtg	ctgatgataa	180
tctcatcgcc	ggagcgacga	aagcttgccc	gaacgaagag	gccaccagat	tgattgcctc	240
tgtggggccg	gcgtaaagag	cacctctttg	gggtcttccg	ctccgatgta	gcggctatcc	300
gcttgcgagc	atthttcgtg	tgtccgtag	ccacctgact	cagtggtgta	cgcgcgggtg	360
gatattggca	ttgaatgtgc	ggtaggctcg	ttgatttggg	ctaataccgc	tatgggtttc	420
tgtgtcgtgg	cggcattgtc	cgatagatga	gaggtttacc	gtgtaccg	gtatggagga	480
tggggaagtc	tccctgattt	tttgaatgtc	gtacataatg	agctatacta	tatactatga	540
tgtgacctct	tggggcgga	gggaggagag	agcctaccac	ttctcgcggtg	aagaacctcc	600
gaggtttcct	tgcgcttctt	ggccctgtgc	ggatcgggga	atagccgagc	atgatgttca	660

tgactacgcg	gcgctccggag	ggaatgccag	tatttcgcgg	atcttggett	cgtttaccca	720
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cccaataaacc	gtgacgatga	ggcttcagcc	attgtctgcg	agtgtcggga	tcgggtgacga	960
cgacaaagct	ccaaggctgc	aattgcaggc	tgagggggag	agacgccccg	cttcgatgat	1020
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gttcgatcag	ggagtaaaag	tcgttcgggt	tcattgggtat	tggagcactt	gctgagatat	1140
ttccccacaa	tgtcgaattc	cagattgacc	acactaccga	gacaatgcgg	cagaagttcg	1200
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agaaaaatata	gtgatggtaa	gggaatatgc	acaaggcaga	tcaggatgga	gtagcttttt	1800
tcaggacacg	tcaacgtcac	accaaacttt	tcctattgta	cgctccgaaa	aacgtagggc	1860
gaaaaattttt	cgttttcgtg	tgggaagcaa	aaaatttttcg	ctccaaaaca	gaaaattctc	1920
acgccacatt	ttcagaaaac	acgcgccaca	atccgaccgt	tttgggttcgt	atttcggcag	1980
ccggcagggt	gtaggcattc	atctgtaggg	caatggtttg	gcatcaatgc	ctccaaaatg	2040
gatgcagctt	gtcgcattga	atccacctta	atgatccgga	taaagccggc	gattaggatt	2100
aacgccgaga	ctgcaaagca	aaattcgaat	taacggctcc	cggctgccaa	cccattccgg	2160
gacaggccac	tgtttttctg	tttgcgtgct	ttttccgtac	tttgactgta	ttttggaaca	2220
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cctgattttg	atgacttttg	cttagggctt	atcctcatgg	gtatcttgtt	cggactggat	2340
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agcagagcgt	ttgctgtcga	gccataatct	tcgctacgaa	cttgctcgatt	cgtttatgac	2460
aaatccttgg	ctccgggtgt	cgtagtagaa	atggttccaa	gagcggcaat	accgtcaaac	2520
cggggcggat	catttttctt	tcgatcaagc	gagatcggca	cgggaagggga	tcgtccctga	2580
tctgaaagat	atgtccgccc	ccaagetctg	gccatcctga	aaggattggg	cttcgaacaa	2640
gtcacaagcg	atacatctca	ggcgattttg	tcaatctgac	agacggagtc	gaactgccga	2700
cggccggaat	gtacttgccc	gtactcgcc	gcccataacg	actcgttggt	gctacgggtg	2760
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gttcacgcga	ggacagtgtc	tcgggaagac	cgaagaggag	aatagcgaat	cgtggtggta	2880
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ttcgacgaag	acgatgcaga	ggacatctcg	gacggcggac	tcgacccggg	gaagaggaca	3000
gatacgaaca	tttccgcact	gtagcagatc	cgggacagca	cttattcgta	tcgacaaatt	3060
ccttgtcgcg	aggatgaaca	acgccaccgc	agccgtatcc	aacaagcggc	tgaagccggg	3120
gccatattcg	tcaatgccga	ccggtaaaga	gcaactaccg	gatcaaaccg	ggcgatgtgg	3180
tcacgtggaa	ctcctccggc	cacgacggga	attggagatc	attcccgaag	atatccactc	3240
gatatagtgt	atgaagacga	tgtactgctc	gtgatcaata	agctgccgga	ttagtgggtac	3300
accccgcca	tggcaattac	acgggtacac	tgtcaatgca	ctggcctact	acctccgaga	3360
ggatcctgaa	tacgaccc					3378

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4863 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4863

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

cgccgacagc	aacgacgaac	tgatgaatct	ctcccgggag	ataatgcccc	actgacccgt	60
ctcagtagcg	atatagccct	gagcgaaccc	ttgttcgtcg	catccgaacc	gtatgggaga	120
gcgatgagaa	agaaaagctc	tcggatgaga	aaaacgcctt	ctgtataatt	gctatcgggg	180
ctttgtcgat	agcggacact	actccccaca	gagaaaaaag	accggctgcg	taccctgtcc	240
gaagaatgag	tatggcctca	ttgacattcg	gacagaatgt	gctcaaggac	gagaacgcta	300
caaactccac	ctcagcgatc	cggcggtgtg	ggccgggatg	cccagacggc	tctcgtcttc	360
gcttcggaga	aagcccggcg	aaagggctat	acgagggttg	gcttttcgac	ctttctgtctc	420
cgagctactt	tgcttttatg	agcattgtcc	cgatgggaac	ctgcgcgggc	agatgtatga	480
agcgaaaatg	gtgtcggctt	cgtagacaat	gagtataaca	acgaagctct	gatccgtaga	540
tggtaaacgg	ccgtctcgag	gaggcacaac	tcctgggtta	cgatacctcg	cccacttttgc	600
tcttcatgac	aggatggcca	agaaccccaa	ggcagtcaag	aactactgga	caaactactg	660
gatgcataca	agcccaaagc	gacagagaat	tggagatgat	ccgcaaattg	gcttgccgac	720
aagacatccg	aagtcataac	ttcacgatac	aaccatggga	ttgggcatac	ttctcggaac	780
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ggacggatgt	gccggtctat	catccggatg	taagggtgtac	gaagtatcgg	acgaagacgg	960
ctcttatatc	ggtctgctct	cacggatttc	tttccacgcg	aaggcaagca	aacggagcat	1020
ggatgaacac	ctccgggacc	agtccgaaca	tcagcacccg	cacatcatca	tcgtgatgac	1080
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gccccgaat	gccgtgatgg	cacggccttc	ggtcatatat	tctcgggagg	ctatgcagcc	1560
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gcttcgattt	cgagggcaaa	ctgtgtgtaa	aaaggatgat	gcgtataaga	gtcagcgaca	2460
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ttcataagtg	aaagtttcag	gacatgtgcg	aggtagctgt	cgatgatccc	atcataggct	2580
tttttccatg	caggagttagc	ttgccattag	gattcgtcac	gatagccttg	aggtaggcca	2640
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aggagagagg	tagaagagaa	cttctcattg	ggcttatagt	ccgcaccaat	accgagagtg	4260
agaatgcagg	agcgaagaaa	ttagagatat	gcttgactcc	tgtcaagtga	tcgagggctt	4320
ctcatatcct	ttggcatact	gtgagaggaa	agtgaaaagc	gacttccgta	ccaatgtttg	4380
ccgatctcat	agccggcctt	cgtgaagagt	cgatcttgtc	tacacttttg	ttccacttgt	4440
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gtcctttttg	ggagtgtcag	atgcagtgtt	tgctttttgt	cgttcgcaag	ggtgaacagc	4680
aagccaccca	ttgccagaaa	aacatcagtc	cgtttcatct	ggtattttct	tcttttttta	4740
aagtgaatac	aagaagccgc	acaagaatca	tcgatgcttg	cacggcttga	aaaaaggtgg	4800
gccaatagga	ttcgaacctt	tgaccctctg	cttgtaggca	gatgctctaa	acagctgagc	4860
tat						4863

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4544 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE:- DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

gggtccgctt	gggatcgctt	ttatcattgc	ccttctggca	tctaccattt	agcccttacg	60
cttaccctcg	tactctgtag	ctatttgctg	gctaagagaa	gaaagatgat	tcgcccggaaa	120
aggaacccat	cgtggccaag	aaactgaagg	ctggtagcga	caggccctgc	agtggtctct	180
tggcaacacg	aaaaaatatt	gcttatgacc	ggtaggtgtac	tggtggctgc	acttatcgtc	240
ttcttaccct	cggacgcagt	tttctgcctc	cattcaacga	agggctcgttc	accacaacgt	300
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(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2932 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2932

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

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(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5742 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...5742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

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gtatagttag	tcaaaattgt	aaaactttat	aagtcacggc	gaaacagctc	taatagcctt	4260
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ttaatagcct	tacggactgt	gtatgtatag	tgagtacttg	acgactgcaa	gttacgaata	4380
atcccaaacg	taacgcattg	gcagagaacg	ttctattttt	ttcgaaaata	caagttgaga	4440
aatgcagcta	caacactatt	ttgcagttga	gttgattata	tctcattgat	atacaatgag	4500
atttcttgtt	ttccgttttc	gaaaataaga	aagagggagc	cttcgttttt	tagatttcga	4560
aaaatagaga	aagacaccgt	ttgataatca	aacacttaca	aatagcaaaa	gcctctattt	4620
ttcgaaaata	aaagtcccaa	ttctcctttt	ctcctttttc	gaaaaacagg	agaaaagagt	4680
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agctgtctgt	gaggtaacag	cctctacca	cttgtccatt	tcagctctcg	caggctgcag	4920
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gcactcacat	ctttggtttg	caacttcata	atatcgagga	aaagctttcc	ccggatcgat	5160
agtattcggg	agcaaaccag	cgttcgttta	tcttgatata	atgcgactgc	gtgtaggcag	5220
atccaacagc	cctttgctat	tctccccaca	tcttccccct	tgccagtag	ggccaggatg	5280
ctcctatcga	cgcaaaggcc	cggtattgct	ccatgagatc	gaaacacagg	gccgggttat	5340
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atcacatagc	tccggaggat	agcgtagcca	tagtttagct	ctgattgacc	aatccctcgg	5460
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agggagtgc	ctccgctatg	ggtatacctt	ccagctgctt	tagctcggcg	atagcttgga	5640
gagaggctct	ttcagctctt	tgtcatggcg	ataaacttta	tgggagtagc	gcaggagttt	5700
gccctgattg	gcgaaacctt	ggttctttga	taaagtaagg	ga		5742

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2035

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

aggtaattctt	cccgtgcccc	tacacttgcg	taatgccctt	acccgtctgt	ggccgacctt	60
gactatggca	agggttacia	atactcgcat	gattttccga	acacttcgtc	tcacagcaat	120

atctgcccga	caaagctgct	aacacctttt	ctggacacct	caaatgcaca	cagtgcata	180
agccaagctg	ggagaaggat	gaagcgatgg	tggaagaggg	aaaaatccca	aaaggataca	240
gcagataatg	actcttcttt	ccgtaccgtc	tctatgccga	cagatatttt	ctcctcaaac	300
aattcgacat	cgaccagaca	ggttggtgcca	tgcgcgtggg	tacgacggcg	tcctgctggg	360
agcatggggc	ggagaggatg	cagccggaag	tatccgcagc	attgcctgga	catagggtacg	420
ggcacagggc	tgattgcctt	atggtggcac	agcgattccc	acaggcccgg	gtgcagggaa	480
tagaaataga	cctatcgctg	ccgaatgtgc	tgcgcgaaac	gccgctgcct	ctcctttttc	540
gatcgaatag	tgatcgcttc	gggagacatt	ttggattcat	cgctcgaagc	cttatcgga	600
atcaacgttt	cgatctgac	gtctcgaatc	cgcctttttc	aagtcttcca	tgcatgcccc	660
cgacagacag	cgcaccatgg	cacgactgaa	gaaaccttgc	cgttggaaaa	actgatatgc	720
cgtgcctccg	aattatctct	ccacaagggc	gattggcact	cattacgcct	cgcgaccggc	780
tgaagattta	cgtctgtatg	cagctacctt	tcgttggttt	catctcgct	gacgaagtgc	840
gtaccctacc	ccataaagaa	cctaaacgcc	tctaagcgaa	tgcgacctgc	cgatactgct	900
atcgaccgat	cgccattcac	cgataccctc	acatacatcc	tgccacaggc	tactattcac	960
cttgagtacg	tgcgtctgac	gagcctttct	atacgacttt	ctttccgcat	cctcggtgt	1020
aggataacca	gctgctcccg	atacttggca	acggtacgac	gagccagtcg	ataaccgttt	1080
cggccaaaac	atcagccaac	tcggtatcat	tcaggggaga	tctcttacct	cggagtgcgt	1140
ggcttcggca	agcactcgtt	tgacctcagc	tgttgaactt	cctctccctt	atcgttgaca	1200
gtgccatcac	tgaaaaagtg	cttcacgaga	agattccgaa	gtcggctctg	acatatttgc	1260
tattgctcac	ccgaagatcg	tactgacatc	ataaccgcgc	ggatcagcca	catctttcag	1320
aatataggct	tcagatcggc	aagttctcca	cttcggaagt	aagcatcctg	taccgtacta	1380
tggcctccat	cgtccgctgt	agcgtttccc	gtcgtgacg	agggcttcga	tgaaccattg	1440
agcttgatcc	actttctgct	tgacgaaaag	agtgtttggt	tgcgttcgcg	tgagcgggtt	1500
ttagcagagc	tttgataatc	tgcatcatct	cctgatagac	cggactgacg	cgcaagggct	1560
gaatatcaga	ccacgagtaa	gcgacacgac	cagatcgtcc	cccattcgct	cgacgataaa	1620
tcgggatgta	ccctgttcat	ggctgcttcg	gcgtcatctc	cccatcggtt	gcgggtttgg	1680
gattgagctg	catgatcagt	tcgaaggcct	ccttctttcc	gaatcggaaa	gggatgctcc	1740
ctcctgcaac	tgctcgaacc	gtttgagaca	aagtcgtcat	aatggttcgt	agaatatagg	1800
agggtgtct	gccagctgtc	gtatccggca	atcgttccaa	ttggagcagc	aaacactctt	1860
tgggtctctg	gcacagatac	cggggggatc	gagactttgt	accaatccta	tacttcttct	1920
acttcctttt	tgtccgcctc	gataccggca	cggaaagcga	atcgtccaga	atctcctcca	1980
aatcacgatg	caggtagcca	tcttcttctt	gttaccaatg	atatagggag	caagc	2035

(2) INFORMATION FOR SEQ ID NO:834

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

tcgtgcggat	tgaggcacac	tttctttttt	atgtataagc	ataaaggtag	cctgactctt	60
ttacgaaaga	ttttgccagt	aacctcttct	taacgtcatt	cgacgtaaga	aaacaccaat	120
gaatttggtt	tttgattagg	gttaaaccct	aaagaacgtg	ggcattatgc	ttgaaaaagt	180
agcgaattat	ttgtatttag	cagttgataa	tcaataagat	acgaacgaac	aaaacgctac	240
tttataagac	aaatatagtt	gatgtttttt	gcatcataga	tgatttctcc	aagcttttga	300
tgaagcaatc	aagaaaaaga	ccctcgaaga	ggcagacaaa	aaagcaggaa	tagaaagttt	360
aagatgtcgg	acagtgaggt	catgaccatc	ctatcctggt	tcattctgtca	agataccgag	420
atttgaaagc	tttttatctt	catacatcac	ctattcttgt	cgatccgagt	tcccacatct	480
tgtctcttat	atcgctttgt	ggagctgcaa	agcaggggtg	gtttcaagct	gatagcattc	540
tcaatatgtg	ttgtttgggt	caatgtacag	gcatctcttt	catcgattca	ccccactgaa	600
ggcttgtcat	atcaaacgag	ctcatgggca	taggacatga	ggggatgggc	tcaaaaaggc	660

aaaagcacca tgggttggtt

680

(2) INFORMATION FOR SEQ ID NO:835

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4565 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4565

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

gatcatgggt	cgctcgttcgt	tcgagccggc	agcgcgtact	ttccttcgcc	ctttgccaat	60
atcgggggct	ttgtgctgct	gacgctcatc	attatctcac	attgggtttc	caaccggttt	120
cgctcgcggc	cttgctggct	tcggtgggtg	ggctgctcgg	atgggtctga	gcggacagct	180
tcagaatctg	gccggcgtct	gacgctgctg	ctgaccaaac	cgttcaaagt	gggggactac	240
atcgttccaa	caatgtggaa	ggggctcgtg	atggcgtgac	gcttttccac	accaggtaat	300
gacgttcgag	aacaagtaca	ttttcatccc	caatggctta	ctcgcagcaa	tgtgatcatc	360
aactacagcc	gcatggcggg	gcgtcggaa	gatggatcat	cgggatcgag	tacaacgagg	420
acttcgatcg	ggtgaaaacg	cgctgctcgc	tctgatcgat	gaggaaccgc	gtattatcaa	480
agacccctc	ccaccgtggt	cttgaaggaa	ttggccgaca	gctctgtgag	ggtgatggcc	540
gtgcgtgggt	cgcgacggac	gacctgtgga	atgtttactg	ggaataaacg	aacgaatcta	600
tagcgaattc	aatcgtcagg	gtatagcatt	cccgttccgc	agcttacgat	acacggatcc	660
gccgccgggc	aggagcgaag	agggaaagta	cggaagctca	atcgccggag	aacgtctcca	720
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tctctcatal	agctccggcc	ggaacatgat	atgcggatat	tgtccagcaa	taccagcccc	960
atcagcaggt	tgttctcgtc	aggacgggga	agacattgcg	atggctgata	ccgaacacgt	1020
gtacgacatt	cccagagtca	tatcgggtct	caccggttcg	aaatcctttt	ctatcaccca	1080
tccaacgtca	taagcgtcag	cacggccttg	tctttctgat	gcgtcagagc	tttcctttct	1140
gtgccaacag	gagcgaatat	atgctgtgcg	gcatgaaagg	cggatagtgg	cgtacgaact	1200
cgtaactcag	agcatgagcg	gaaggaaaga	ttgtatccgc	cggtcagctc	ggcgtacagg	1260
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caagtttttc	tgtggcagat	agacctcgat	gaagggaaag	aagttcagcg	caaggcaaat	1380
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cagcacccaa	taggaattga	atacggctcg	aacaggctgc	catccatcaa	agagctgtac	1560
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ttgagtttgc	tctcgaagac	gaacatgacc	ttggaaagta	gaaagatacc	agtcgcaga	1740
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tcgcgcga	ggaggaaagt	caagaaccac	ccgtagcgac	tcgtttcctt	tccttcattt	2460
ccccaatcct	ttaaaaatcg	tttggcaagt	atataacaga	cttctatatc	cagcctgagg	2520

ctcatattct	cgtagtacag	aaaatcgttt	gcaggcgttc	cagcatttca	tccggagtgg	2580
aagcatagcc	gtatcggtcca	tgccccagga	ggtgatgccc	ggacggacat	tgtgcagcag	2640
gtagtatagg	gagcacgctc	cacgagctgc	cggatgtaga	aagcccgttc	ggggccggcc	2700
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gcgatcacgg	catagaccgg	aatcagcaga	atcaacatca	aaagggagac	agccgggtcgg	3000
cgaaccactt	gatgctcttg	gcgcattcgc	tcatgttgtg	gccgtcatgt	ccaccatagg	3060
ctctcctttc	atccccgtga	cattttacttg	gctccggcga	aaagcatgct	gcgcattcggc	3120
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cggggaatcc	acggcgagga	tgatctgatg	gggcttgctc	tcttgccacc	cttcgcgaca	3240
agcgtggcaa	aggacttgag	cgactgctcg	aatccctctc	tcgcgtcgga	gggacgaagt	3300
ggagccgcgt	ggtggccatg	tcgtttacgg	actcagccac	gaagccgtct	cttcggctat	3360
cgtgccgctc	ccgatgagca	gacccgatga	taaccttttg	tcttttttcg	ctctttgatg	3420
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tcacctccac	ttctcccctt	gtgccgagtc	gatgatcgaa	gaggcctgac	cggccggctc	3900
ttcgcccgcg	cactccacta	ataatccaca	ccgtctaaga	tgcccgagc	gatctcggcg	3960
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cagtctgcat	agctcggcag	agaaggtttc	acgcgtcagg	cgaatgccag	cgatccgtcc	4080
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tcgtcagctc	gatcagatcc	caggcaactc	cggcacttcg	tccatgaggc	cttgagactt	4200
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gggtaaagga	tgattccgcc	tttgcgcatg	acttcggcgg	cttcttcgct	tcacttctct	4380
gaatatcggt	gagcatatcg	atgggtatat	tctatttttt	cgagagagcc	gagtgcgctc	4440
actccttcac	gggcaaaaga	tgaatatctg	ccgtatcaat	gctttaatat	gtcatttctt	4500
agtcttcacg	gttatttctg	tctgtttctt	tattttataa	atgatcagtt	ccggccgaga	4560
aagtt						4565

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3444 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3444

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

gagctcggta	ccctgccacg	aacgcgcgatg	tagcagaggct	tattagccga	gccaataaag	60
tgagcataca	aggaagctct	acttccaaaa	cctcatgtct	tcttccgtgc	tcttgcaaac	120
agtcagagtt	tgcttgccat	cgaatgtgct	tcttccacgt	atgtgatctg	tggcagggtca	180
agttgctcgg	caatctaggt	cctacctgag	ccgtatcacc	gtcgatagct	tgacgaccgg	240
cgatatcaga	tcgtggtcga	tctttctcaa	agcttgagag	agtgtgtaac	ttgtgccaat	300
gtgtcggctc	caccgaactt	acgatcgctg	acaaggatgg	catatctgca	cccatggcat	360
atgcttcgcg	caggatagct	tctgcctgtg	gcgtcccatg	gtgatcacag	ttacgtgagc	420
attgtgtgtg	tccttgaagc	gagagcctgt	tccttgcctc	ccttgcctc	ggggttcagt	480

atactgggca	accgtcacga	atgagcgtgc	cttttacagg	atccaatttg	atttcgggtat	540
atcgggtacc	tgtttgatac	aaacaacgat	attcatagtc	taatgcttat	tatttttaata	600
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agcatcgcgc	atcatacgtc	ctaccgatac	tcacgagtat	agccatatcc	tccgtggaac	720
tgaaccgctt	tcgtatcata	tccatagccg	tttcggcgca	atagagtttg	gcttgagccg	780
actcatcgta	tagggcatct	tcattgtcctt	cttccagctt	gccaaacgaa	ccacaaacga	840
gatgcctgaa	tacggcattg	caagtcggcg	agttggaatt	gctgttctgg	aattgtgcga	900
tgctgcgacc	gaattgttta	cgctcttttg	ttacttcacc	gtctcgtcca	tagctccctg	960
tgcaataccg	agggcctgag	tgcgataccg	atacgtccgc	catcaagggt	tttcatggcg	1020
atcttgaagc	accgcctacg	cgaccgagaa	gattctcttt	ggggacgata	cagttttcaa	1080
aataagttcg	catgtagccg	aaccacggat	acccatctta	agctcttctt	tccgatagag	1140
aacccgggag	ttcctttttc	aacgatgaaa	gcggtgtacc	acgtgtgccc	tggtctttat	1200
ctgtcatggc	aaataccacg	tatactgagc	atattcggca	ttggtgataa	aaatcttgtt	1260
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gtactgcatt	gggttcggta	agtccaaatg	caccgatcca	ttcgccagaa	caagtttcgg	1380
caaatacttc	atcttttgtt	cttctgttcc	attttcgtag	agggagctgc	gcacaaagat	1440
gtgtgtgcag	agagaaccac	gcctgtggta	cacatacacg	gcttagttcc	tccactgcca	1500
ttgaatacat	tacgtttgtc	cgccggcacc	acgtattcca	acggggaaaag	ggatgcccat	1560
cagtcgcgatt	cgcccatctt	ctttactgtt	tcgatgggga	aacgttcctg	ctcgtcattt	1620
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ttcttggggg	gtctgagaaa	agttcataat	tcttgagttt	atgttggttg	tagtgatact	1740
aaaaactctt	ttattgttgc	atcggatgat	ctcagaagca	aaagtcaatg	aagcttcagt	1800
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ctttcaagca	aattcacggg	ctgtcaagca	cttcacgtgc	tcggctctgt	acgataccgc	3420
cttctttgaa	tcaacttccg	atcc				3444

(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

tacgaattcg	agctcggtag	ccgggggatag	cctgtaccgg	cagagtatat	tgtgggagat	60
aagatcctct	cccattgttc	gggcgaatca	tatttgagag	tttcgtcttc	ccctttctta	120
gggaatccac	atccctcagg	gatctcccca	agacccttaa	gggatccctc	ccgagacccc	180
ttaggggtcc	cacccggaact	cctcagggat	cccataggag	actccccggg	ggtctcgaca	240
gggaccctcg	ggggtcttca	cggactgaca	acttttcatt	atcatgttaa	cccttaacaa	300
ttattcctat	gcagaactta	atccgtcaag	agccgggtca	tgagatcggc	aagcatggag	360
agaccgaagc	atcgggtcacg	gttcacaaca	tttattgtac	ttttaggcct	catttagaac	420
gctatggagc	aagaaaaaca	gtgcagacag	agtatatcga	gagcgacatc	aagacgctgg	480
aatgggacga	catattcgcc	gtcgtcccg	gatgtatatc	ggtaagctgg	gcgatggcat	540
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gacgggcatg	gcactgtatc	cgatcattca	cctgagcgat	acggatatga	gatcgtcgtc	1140
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ctccaagaat	ttcgattacg	cgacattcgt	agcggcatgg	ccgcagctat	cagtatcaaa	1320
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agcgcaaaag	aatgagcgga	tcaccaaatt	ggcacgcgaa	cgagctaaga	aatccaatct	1560
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tatcattgac	aacttagtcg	tggtaggagt	gtgctttaag	cgatcctccc	gattttctca	2340
gaatcaaata	tgaagaagaat	atcgccctct	ttgcccgttc	gttcgaccct	ttcacacgcg	2400
gcacgcccag	atcgctgaac	gctcgtcggc	catattcgat	gaggatgatca	cgctatcggc	2460
atcaatgaac	agaagcgcac	gctcttctcc	gcagaacggg	acaagagcag	atagcccgtc	2520
actatgcttc	ccgacctgct	atcgggggat	tacttatagt	gggcttacgg	tcgatct	2577

(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2257 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

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atcgaacagc tccgttggga aaggccctgc tccgacgcgc gtgcaatagc cttgaatatc      60
ccgtacacat cgcccacatt gcgaggagct actcccaacc ggtacaacag ccggcacata      120
tcgtattgct actggtcacg aacgggtaga accgaagtca atgtccaaga gcgaaccttg      180
ggctccttcg gccaaacctt cttgccggac aaaagggcac cattgatcag aaattcactg      240
tccacaattc aaacttgccg agatattttg tagcctccat ccagcgttcc tccaatccgc      300
cagcttgctc gtaggatagt tcagggaatt cagtatgcga agagacgctc cttggccacc      360
gaataggcct cttcgaagcc gtgttccaaa tcccgcacag caagccgttg cggctcactt      420
tgtccgtata tgtggggccg accctttgcc tgtggttccg atcttgccgc ttcccttagc      480
catttcgttg cagcatccaa cagccgatgc gtaggcataa tgaggtgggc cttgcgcgaa      540
tcacgagacg cttggtcaga tcgtgaccgc tgcgggcaag agcttcggtt cttccttgaa      600
aagcagggga tcgagtacca ctccattgcc tatgacatcg ttttctcacc ctggaagatt      660
cccgaaggaa ttgaagcgag cgacaatatc gtagtgcgga gtcagtacat ccactatttt      780
tgggggccacc ttgaagcgag cgacaatatc gtagtgcgga gtcagtacat ccactatttt      780
tcctttcctt catcgcccca ttgcaggccg agaagtacat ccactttttc cattcggatc      840
aatgttatat gtctgtggtt ttattttttt ttcttgggag cgctttgtcc gccgcctttt      900
tgagggccga ctgcttcttc ctgcatttgt ccatatacca tagaggcaaa tgatggcctg      960
cctataagag aagcgtgggtg tctgagatcc ttgtcgcca gtatcgactt cacatttcgt      1020
cggtagtagt agaaaattgt gcacattcgg tacagaaaag cagcggacac tgctctgcaa      1080
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gagtgagatc gaacaagtcg tccgggtgaa tatcttcttc agattatatg cgacttcaag      1260
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gcaagcgaat cgaacgcac gtaatctgta tcggcccatc ggcataggga gcgatctcgt      1560
actcattgag aggaaagtaa tacctcgtct cgagattccg aaattgtccg taggataaga      1620
tcgccaagg taccatagcc catttcgttg aggttttcca aagaagaacc cttgggtctg      1680
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gaacagagca ttcaggattt ccgcctcacc gaatcggcga tagcgtgagg aatgctgtcc      2100
gatggatttc aaacaggatt ttaatatcgt tgcaaggcat agtggagtcg cctaacagtg      2160
agtgaacgc tccatggaaa tactatcgaa aacgatcctg tcgcttgttt gttcctctct      2220
ctcttacaag atgaaatctg cagcagggta ccgacta      2257

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(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1177 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1177

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

gagctcggta	ccctttcaac	ttcgttccct	actacgccaa	tcttttcagc	cgctcttcgt	60
cttcatatcg	gttatattct	ttacgtcgaa	gctggctgga	agtccgagat	catcgcgatg	120
ctttcgcccg	gagtcagttt	caagcgggtg	tggtgcccta	tatgttgtcg	gcaacgggtg	180
ttgccatact	gactttctgc	tcaatagttt	cgttatccca	ccgggcaatg	ctacacgaat	240
tgatttcaga	acaaatacat	caagaacaag	aaggtagagt	atgccgagag	cgtagctcgt	300
aagtgaagaa	aggggtcttt	gcctttttcg	gatcgtagag	cgagccatgc	gaaccgggta	360
ccagttcagc	ctggaagagt	tcaagggcaa	gcgctcgtct	cccgtctgac	agcggatagg	420
atccaatacg	actcgcttta	tactggcgca	ttttcaacta	caggatcagg	cacttcggta	480
agtataaaga	acggctcgaga	gcggtagcga	gatggacacg	gtaatagccg	tccgcccggg	540
gacttcctcg	tggcagagga	tgatgtggag	acgatgacga	ctaccgactg	catacctata	600
tatcgcatca	gaagcaaagg	ggcgtgggca	acgtcaactc	tttgagatcg	aactgcacaa	660
acgctatgca	gccatcttct	ctgccttata	ctcaccatta	tcggtgcttc	gctctcttca	720
cgcaaagtaa	aaggaggatg	gggatcaata	tcgctatcgg	tctggggcctt	agctttgcct	780
atatctgttt	atgaccgttg	ccggtacatt	tgccatcagc	ggatctttgc	ctcgtttatg	840
gcagcttggt	tgcttaactt	cgtgtttacg	gtcattgccg	ttccctttat	aaaaaagctc	900
cgcgatagcg	agacttcctg	atgtaacgat	accacaacta	tgaaagagaa	aatacagaag	960
aatatcctca	taaagaacaa	cgtgccactt	tcgattacga	gattttggac	gtttacacgg	1020
cgggcattga	ttggtcggta	ccgagatcaa	atcgctccga	ctgggcaaag	gcggtttgtt	1080
gatacctatt	gctacttcca	tcggggagag	ctgtgggtga	agaatattac	atagccgaat	1140
actctatgca	cctatacaac	catgtgctcg	ccgcgac			1177

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1041 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

aaggaaacta	atcctatcta	actctcaaaa	tcaactaaac	gatatgaaat	attggtattg	60
aactgtggta	gttcatccgt	caaataataag	ctactcgaat	gccccaaagga	gacgtatttg	120
ctcaggcccg	agtggaaaaa	ttaggcctcc	cggctcattt	ctcaaaactaa	ccatgcccaa	180
tggtgagaaa	gtggtgtgga	gaaagatatg	cccgaacata	cgatagccgt	agagttcatt	240
ctttcgtgct	caaagatgac	aaatacggat	gcatcaagag	ctatgaagaa	atcgtgcagt	300
agggcaccgt	ctcgttcatg	gaggtgagaa	gttcagtaat	agctggagat	cacaccggaa	360
gtaattgcca	aagtagaaga	atgtattcct	ttgctccact	tcacaatccg	gctaacctca	420
aaggcgtcgt	agccatcgag	agttgctccc	cggtatctcg	cagggtgggtg	tattcgatac	480
agctttcttc	aaaccatgcc	ggaacatgtg	taccgatatg	ccttgccata	tgatatgtga	540
acaagcatgg	tgtacgtcgc	tatggattcc	acggcaccag	ccatcgcttg	tcagtgcccg	600
tgcttgtgag	atcttgggtt	tggactacga	caaaaactga	taatacggc	acatacggc	660
aatggagctt	ccatcgctgc	aatcaaaacg	gcaaggcttt	ggacgtatca	ttggggatga	720
cacccgtaga	agggtatga	tgggtacgcg	cagtggagac	gtagaccccg	gtgttcttac	780
cttctgatgg	aagcagaagg	cctcgaagca	gcaggaatct	ctgaactgat	caaaaaaaga	840
gcggtgtact	tggcgtaagc	ggtgtgtcct	ccgacatgcg	cgaatcgaag	atgccatcaa	900
gaatggcaac	gaaagagcta	ctctggccat	gccatgtacg	actacaggat	caaaaaatat	960
gtaggagctt	atgccgctgc	tgggaggagt	cgatgtgctc	gtattcaccg	gtggagtggg	1020
tgaaacccaa	taccacgaga	g				1041

(2) INFORMATION FOR SEQ ID NO:841

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 630 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

gcttggcact	gaaaggacgg	tacaggtgca	cgctgagcag	tccgactttt	ctcctttggc	60
acggaggaag	tctatcactt	cgcgaatagc	ttctgtcacg	aacccatggc	aataatcaca	120
tgctcggtt	cgggatctcc	gtaatagcga	acagatggta	gtggcgcccg	gtaaccgtag	180
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gattgagagc	ttgcttgcg	aaacgcttta	catcgcccc	atcatgaacc	gggctaagtc	360
ttcattgtcg	agagcttcga	ttttctgaat	ctatgagagg	ttcggaacc	atcgaagaag	420
tgaatgaagg	ggatgcgagt	agtagcggtt	ccaagtgtgc	cacgccggcc	aagatccatg	480
acttcctgca	ggatccggta	cagagctgag	caaagccggt	ctgacgtgca	gccatgacac	540
ctgatggtct	ccgaagatag	agagggcatg	ggaggcaata	gtacgtgcca	aacgtggaaa	600
acacaagga	gcaactctcc	ggaaatctct				630

(2) INFORMATION FOR SEQ ID NO:842

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 4319 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...4319

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

tggcgagaag	atgatcttcg	gtgccaatcg	cgataaagga	atcgtattga	aggtctcaag	60
cttcgtgccg	ttacgatagg	cgaagacggt	tacaccctga	tgacgtactc	gtgcacgata	120
agtatgagca	ggacgtaacg	ctgcacctct	cctcgcaatg	atgggttaca	cggatgatag	180
tatgcctatc	gctctcgtgt	catccgcgac	gtggaagcac	cctgctacga	cagagcggtg	240
gaagccagat	cgaagagatc	cagcagaaga	accccatatg	caagctccat	gatccctcat	300
ccaaggagac	gtttgggaga	tcaaataaag	cagtttagac	gatagtacct	aaacgggtag	360
gattcgacag	aaacctttcg	gggaggatgt	cgttcctacc	cgtttctctt	ttatgggacg	420
agtgtagacc	ggttattcga	cggggtcgga	gattgatcga	gtataaaagc	agggagccat	480
gccgaaagat	gcggtatggc	tcctgtcag	tcagattatt	tgtgtctgaa	atacttccgt	540
acgagaggag	ggtcagtctt	tggcttccat	acagtcctcg	gaggtttcag	atttcgaatg	600

cgccaatcct	gcgatatag	attgttgcca	cgtgtgcgag	atthtttcagg	aagccgagcg	660
gccttctgcg	gaacgtggcg	aggacgagcc	gagcggcaga	tcgggcatgg	tggtcacaga	720
ctgtcgggcc	aggtagagag	agcttcatct	cgtgaaaatt	ccatatcgaa	gaatgagtgg	780
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ccccactgtg	atccctgctg	tgtgcagcct	gatgccattt	gcttgagaca	ttcgaccatt	900
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(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 412 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

tttggaacc gatgctccga acttatctcc ctaccatcta ggagtttccg tacacagcct	60
tcttggtgat cctaattgctc aagtcctgca atacacctct ccatctgtac ctagtgcaact	120
gagcagggct tccnntgacc accgntatt cgtgattccc tgcttgctct tcttcccgaa	180
ggataagcat ccttttatcc aaaagtccaa gaaagcattc tcggttaagcg catgataata	240
accgaactgg ccatgtgtcg gtatttctgg aatagtgaat ggctcacctt gcgttgggtg	300
tgaatgtctt ctaccgaata gaatacaaat acgggcaatg gccgtacctc cctcatctg	360
ttgcataccc ctctagtagc ccttttggtg tatcctgatg ggtcttggtat gt	412

(2) INFORMATION FOR SEQ ID NO:844

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 735 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...735

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

gggttccatc cttggacacc agacgatcgg cgatataagg tttgagaaag ccttgcgccg	60
gatctccgcc aatccggctg aatcgggaagg aatctcttcg gtacgatctg ctgatggcc	120
atccccctct catttccgat cataaaccta tgtccgtaag tgaagtaatc ttttcggcat	180
aggaaatact gtcgagatct cgttggaag acgacggatc agctccagat tttctttcgt	240
gaaggattgt cacagtcggt caatacagca gcatagtatt cattgccgaa aacgatttga	300
actcctccgt cttgatgatc ataggatcgt cctcgagaaa atatcctccc aagaggtttt	360
gatactaagg aaacgcaatc cattgaatcc aaaaggagaa aaaagaaaaa acctcccaat	420
acaatccaac gcttgcggtat atccattcgc cacgatggcg aaaccacctg ttaatgcgtt	480
ctattttcat gctttgtctc gtttgtgttt tctgtattcc gtattatagt catatctgct	540
cagtgtctgc cagccggccg taccgaaagc gatatatctg gacagacctg atttatctcc	600
tcctcgggtat gaatctcatt tgttattatc tcgatgaaac attgaccac cagcggccc	660
ccaatcggat aaagaagggg cttaccgggt gttggcatgt ggtattttt ctttgaagag	720
ctgcagatag ttttc	735

(2) INFORMATION FOR SEQ ID NO:845

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 348 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...348
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

ttcccagttt gccactgcag aacgcagcag cttntctaca cgtgccgaac ttctttgtta	60
gagaacttca gcacacccaa ggcgcgattc acttccatcc acgaatcata tcggggccacc	120
aatctcatct tgcggggaga agtaggccgt tacgaagctt ggcaaagtac atctgcttga	180
gggcttcctt tcttgctcgg ctgaattatg ttttcttgca cccattgttc ttaatacttt	240
taattttcag attcctgaag tgtttgattt caaccgaatt acttcttctt gttacggcat	300
gaccacggaa agtaccgtgt aggagagaac tcccctaact tatccac	348

(2) INFORMATION FOR SEQ ID NO:846

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 5677 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...5677
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

gcggtctcttc gctttcgtgc cgcgtgcctg cggctctgcga tgcattccatc cgcttcgcgg	60
cgcaggaggt tggctgcgcg gcttggttgc cgttcggtgc ttccagccgc tcttcccgtt	120
tggtcaggta gtattcgtag ttgccttgta ggcatacagc tgtttggtgt ccagctccag	180
tatgcgggtt catacggatc cagaaagtag cggctcgtgg tgaccagaag cagtcggatc	240
tgctgtgcga gaggtagccc tccagccatt cgatcacgtc cagatcgagg tgatggtcgg	300
ttcgtccaga aacagcagtt ccggtattgcc gatgagccta cctccagagc gatacgctta	360
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gaatctcccg cgcgcgctgt tgtactccca cgcgccaaag gcatccattt cggggagcaa	480
ctcctccatg gtttgccgtc gccccgagcc gaagcctcct cccattgcgc tatcaggag	540
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tcctttcgtc	taaagtgaat	aagggttcac	gtgccacgag	tgaattatt	gcggttcgaa	5580
ttacggtaat	gctcttttcc	catccggtac	aaatataccc	tgtacgaaat	acgctttttt	5640
gccgagggcat	actttgtaca	gggtaagtaa	gcatgtc			5677

(2) INFORMATION FOR SEQ ID NO:847

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6232 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...6232

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

tggagcacaa	cccctgctcg	gtcatcgcg	ttgccgtctg	ggtaatacca	tccggagatt	60
acggagatgc	agacacgtgc	catcctcggt	gcttgcttga	gctgaagaag	gaagggtgtag	120
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(2) INFORMATION FOR SEQ ID NO:848

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1059 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1059

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

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cctcttgga	gagagatcac	ggattcggta	tattgggctg			1059

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2146 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...2146

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

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(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 796 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...796

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

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cggttcgggg cttttcgtt tctgcctacg tctcgagggg gaagattcga cggctctgct      180

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cgttgggccc	tacgaacct	ccttgctgta	ccggctgaaa	atgtagtcga	agtcgctcag	780
gatatgcgat	cgccga					796

(2) INFORMATION FOR SEQ ID NO:851

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3743 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3743

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

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taccaatttg	gaagcattct	gccgcgcaca	caaggagagc	tatcggcaga	tgtgatcatc	120
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tcagtctacg	ttcgagaaa	tattgggact	gaaaaccgtg	ctgatgggat	tcgattggaa	840
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agcacgaagt	ttgctttgaa	atc				3743

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2241 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2241

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

ggattcgtat	ctggcatcga	tatcattaat	ggcataagat	ctcgtcagcg	agcacccaac	60
ttttcttgca	tacgggtatc	tgcgatttgc	ttttccacct	ctgccattca	ctctggattt	120
cgtacagata	gccttgctgt	tcggccgctg	caattttaatt	tgcttgctgc	tgatgtgatt	180
cagaaaatca	ttcacgcagc	cctgtcggat	ccattgatac	caaatcggga	gaaaaactgt	240
tgggcaacat	ggagggctga	acaccatcac	cgataatcag	agccaatagc	tcttcggact	300
taccgtaaga	cccaacttgt	cagcttgcgt	cccgagcacg	tagcctgtac	atactgctgt	360
gcgagctgat	tgttcacaga	agcacgctgt	tctcggtgat	ctttgtttcca	ctttgctcgg	420
cgcgttttctc	catcgctttg	aacgctgttg	gtaatcgtag	attttgattt	tctctccgtt	480
gatatccaag	ctacttcttg	gctctgacgg	aagaaagtag	atccggatcg	aaggaagtcc	540
cgataataaa	ggcaaaaaga	gccacgccca	ccactacgat	gagcaaacgg	ctttacctct	600
gattttctct	aatgtcgcca	ttttgttatt	atgtttttat	ttattatgca	ctattaagaa	660
tgtgttttatt	aagccacaaa	gatacaaccg	gcttcaaaat	gccaaagcctt	tcaactgatt	720

gttttttagt	tcgatggctg	tcgatggaca	ttttcaccag	ttcgatcttg	gtggaagaag	780
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acccaaaacg	ttcgttcaca	tcattctattt	catacgacca	ctgaccagat	aggtatgagg	960
gccgagctgt	ttggctatga	cttgcgagtg	tcgtgttcgt	cctcaatgtc	accgaaaatc	1020
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gacgaataaa	agagcgagaa	aaccggtgaa	gagtttagac	agaggataaa	gcagataata	1560
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ccggatgtcg	ataagcaagt	ttaacgctct	gcctgtgaga	tcgcctctat	tcctgtccaa	1860
ctaagacgca	gtttgtccga	agaaaggaaa	gcaatctcag	caccggaaaa	aagccggaga	1920
gtaaaagtgt	aatcagtatg	tacaggtaat	tcatttttgc	ctttggtggt	tgagaaacc	1980
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cnggctttga	atgtagactg	tatcatcgga	ataaacaatg	gcgttttctt	atccatataa	2220
atcgggggga	atggaagtct	c				2241

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2974

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

tgccggaagt	cgaacatgcg	gatggccagc	gtacgcggat	cgttctcggt	tgccctgtt	60
tggccgcccc	ataggtgaag	agcaggccga	tcagcaggcg	gtgagcgaga	aagctcctgc	120
caaagctgct	cctttcctga	ttcgcgacct	atcgctccctt	tttccaaaag	gaaagccaag	180
gccggttttg	ccacgtggtc	aggggtgatc	ctcccagcag	aaaggcaaac	cagcgaatgg	240
tgactcgccg	aaacttccac	gcatcttgta	ccgaaccgac	agtacagtga	tggaagggga	300
agcaggaaga	acgagagtgg	atagctctcg	atagtgaacg	gcaggtaagg	gctgtgaagc	360
tgccggccga	caagaggggtg	acgagcaggc	tctcgtccgt	ccctgacccg	ccacgcggcg	420
gagataggcg	taggtggccg	tacgcctgct	gccgtgcaca	acgtcatcaa	ggtcagacaa	480
atgccgaggg	taagctctct	cctccgattg	tgacgaatcc	gaaccgattg	aggacataga	540
gaggttcagg	aagggtatgg	ttatgtcgaa	gacacctcct	gccgtttcaa	gcgatagtag	600
ttgtcatagc	ccagatatgc	accgatgagt	ccgtcgtttg	tgtcaacagt	ccggtggatg	660
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cttatattgc	aaatgtagat	attatataat	gatgagaata	tactatggtc	tcaatgagag	840
gatactatgg	tctcctatga	gaggatacta	tggtctcaca	cggaggatac	tatggtctca	900
tatgagagaa	tactatggtc	tcatatgaga	gatactatgg	tctcctatga	gaggatacta	960
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ccgaacggag	aatcaggagg	tgagcgcaac	ctctccgagg	ccgtgggcga	agccagtcgt	2880
ctgaaagtgg	aaaagccgaa	ctgaccggaa	aggtggagct	ggcatcgaaa	ctggaggcta	2940
cggcatatcg	gtggctttgc	tcgacaagaa	aggc			2974

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

gcctccgaag	ttcaagggtgc	ctaccggcgg	ttctaccctg	atcaagtacg	gctatggtat	60
cattccgaag	ctatgtatgt	gaataagttc	tatatcatat	atatgactat	tccaaagacg	120
cttgggagca	ggggatttta	ttggccatga	gttcaactca	cctcttcact	acgtggaaga	180
atacactttc	gatttgctca	atggaagggg	aaagacatca	aggtggcttt	cgtgaaaaac	240
ggtactatca	aatggctatg	gatgacatca	gaatcctgaa	ctaccaaaagc	ctgcagaggt	300
agaacaagaa	ggtattcgga	tttatcccaa	tccgactacg	gatggctgat	gctggacaat	360
gtgggtgatg	taagcgccat	tcgtattata	gaatgtatgg	caggccgctt	gtggtggctg	420
gcaatgccgg	tagctctaag	tgagtatcga	tgtctccgat	ttgggacggg	gcaattatgt	480
cgctcgatatg	agtgcaaagg	ccataggaaa	atcagccggc	tgataacaaa	agagtaaagt	540
ccattctctc	ccgaggggga	gggc				564

(2) INFORMATION FOR SEQ ID NO:855

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2795 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2795

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

cggtataat	ctcgaagcaa	atcctctctg	caagctgcaa	gcatgaaatt	cgacaaacga	60
aattccacac	tgcaagcctg	caatatgaaa	tttcggcgaa	aaattactcg	ctgcaagctt	120
gcggccatta	atctcgggaag	caaaattgtc	actgcaagca	tgtaacagta	ttttctgcaa	180
ccgaaatcac	cgtctgaaac	ttgaatcaaa	gagatactaa	tcataagaca	attattttct	240
caataaataa	tcattacttc	catatttagt	catagctatc	atgcgtactt	atttaaattc	300
ctcagccgca	acaaactcta	caccttcggt	accatcgtag	gcttgccctc	tcgctcatat	360
tcgtcttgct	gcttagcttc	tatgtacggc	gcaacagcaa	gccgatcgta	ttcataccga	420
ttacaaaacgt	atctatcagt	aaatgtcgag	agtaagaata	actggagcgg	atztatctgt	480
tgctatcctg	cggaacgctc	attcgcgagc	aggtaccgca	tgtggaagag	atatgccgct	540
cagcgaatac	aacgacaagg	aatacatctt	tatcggtgcc	gacaagcaaa	cgggttgatt	600
gcctcccac	tttcggctga	atccaaactc	tttacttctt	cgacggctat	aaactccttg	660
agggtgatcc	caaaactgtc	ctttccagca	gaacagtgcc	gttatcttct	ccgcttggtc	720
agcccgatc	ttcgggaacgt	gtctcccatc	gggcaggaga	tttcgttttt	cgatttttcc	780
aaaacaagca	gacctttcgg	atcacgggca	tcattggagcc	gatgccggat	aacgccatat	840
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acagcccgat	cgacacctct	atctcagccg	atcggcctac	aacgatttcg	agtagccaat	1920
ctgccggacg	gtgtcattca	ttggggcaaa	gccgggtgag	ctattattgc	ggcgatgctc	1980
ccgaggttca	cttcggcgga	ttcaaggagc	gcacccgagc	tatctcttca	tcccttatcc	2040
ccagtcatcc	gcctgggtctg	gtccgtactg	gtccgctatt	cggaaggggc	cgatccggag	2100
cagttgatca	aagcatacag	gccgtttact	cccgattacc	ggggcagccc	tataccaaat	2160
cctgcgttcg	gaagacatca	tagcctcgca	cagcgaggag	gaacgtcact	tagcggtttt	2220
cttctcctct	tcagcattct	ggcattggtc	ggaaggtaat	gagcgtcttt	gccatggcag	2280
ctctgcgcac	tcgtcacaag	caaaagaaat	agccatccgc	aaggtggtgg	gagcacgcga	2340
agtgcagata	ttcagattat	cggccgcccgc	agcctgtgga	atctgctcaa	cgcttcgccc	2400
gggccactcc	cgtctcctat	ctgggtcatga	accgctggct	gcaaggctat	cctatcatgc	2460
cgatatgcct	tggtgggtat	tccccgcac	gcttctcttg	tctccgcagt	agccatgctc	2520
tccatgctca	gcatggccat	gaacgctgat	cgagcaaccc	cgctcgactac	ctcaaaaacg	2580

```

aataacaaaa acagcataaa aacgattgtc gtcactatgc gtacttattt caaattcctc 2640
agcagaacaa actctacacc ttcgttaccg tattcggttt ctccgtatct ctgattttgt 2700
catcatatta ggcataata tccggaacga aatgtccgtg gatccttcca ctggaagtcc 2760
gaccgcatca tatatgctct gctcggagca agggc 2795

```

(2) INFORMATION FOR SEQ ID NO:856

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1215 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1215

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

```

acctgtatct gtatatacctg atttttagttg ttttttagtca ttcaatctca cgtagccaat 60
tttatcggat aacataattc ctttttttct tcctgttttt gtatcattct tcaagcctct 120
aaaatataat catagcagat aatgaggtct cctgcataatg tattgaaaaa tcataacaaa 180
ttgcaatgat gttaaaattt tccattgaac gcaacggctt atacttttagt ctcatcttag 240
atataagaga cgtagattat aaaaaccatt gcatacctacg caaaattctt tacgaaagcg 300
aaaaaagatg tgtaataaaa gtaatggaag ctgccggggg gcactaactt tacattgtta 360
tgcagaacgt aggattaaga ctcaaacagg agggaacaga aaaggctatt ccttacagta 420
tgttgctgct tcactgaatg tagtaccact acagtctatc ggatcgaagc cggaaataaa 480
tatttaagta ggagcttttc gaccggtact gtgaactttt ggaactgaat cccagagact 540
gttttcgaat cctgcaatgg aagaacgaga ccggattgct cttgagatgg ccgaagggtt 600
atagagataa tggagttggg ggtaacaatt atcctgccaa gattatgaat atcaatatcc 660
gacccggggc tccggacagt aaaatgaaca atagatatga tggaaagcga tgaaataaaa 720
agcattcaag aaaactcaaa gatattcagg ggggtgttatc ggagatacat ggttttatga 780
gagactgaaa aaagattaca gcccggtgga tgaaagcatc agtctggatt cgatatgctc 840
gccatgcttt tgaatgtctc tcctactact gtttaccgat gggagcaagg aatgagttgc 900
cctacacgat tctgagcagc ggagcatgtg ctatcgattc gacgaagtgt acgtggccgt 960
caaagtggc cggttaagag ccgcggattc aatcggatag aggcattaag gactttatcc 1020
gtctatcgga cggtatcata gaggggtggtg gttttgaagc aaaggaaaaa gaccctngtt 1080
catatcaagg aacaaatact gggaaagaac ggatgaaggg ttgnctttat tcaactacta 1140
tatgcctttt cctttcaagc ccgaagaaga aatttcaaac ccgctctacg aagacaaacg 1200
agctttcctg gtata 1215

```

(2) INFORMATION FOR SEQ ID NO:857

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1632 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...1632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```

cattgcgga cctatcagca gcaagccgat acctgtataa acgccatagg ccaatcgtct 60
ttgaccagct ccaactccga catcgctact catcgccctg ttcgcgattg tagctaagct 120
gatagatata ccaccctctg taacggacgg tttattgacc agtatagtcg cgctgtcgat 180
ctcgccattc tcagcgatag gtatacctgc gagctgtatt gtttcggatc gggttctgcc 240
atcacagcga cagactgtcc gttaatcgta agcttcgata gggaaataca tggcaccgca 300
tgacacccaa ccgataacca cttcttgggg aaaatctaaa ttccagctct tactctggct 360
gaatgtacgg ctcccaatga cctgaattcg cgaagacaac ggagtccttg gtcacgacag 420
cagccgaata aggcagatgc gcaatacctc gatctgccag cggctctatcg ttcccttgga 480
aggagtcgga ctatggacag atgcgcggga cgagaatagg gaagagcctt gccactattt 540
tgcgtatgat catcaatttg ggagggtact ctgctatttc gaacttttta gttctatggc 600
tacggggagt tccaccattt tttgtccgt tggctagcc cctccactca ggatagtcgg 660
agtcggaata tacttgcat ctgtatgcc gatgtcggca gaagacataa gcccgaataa 720
aagtgcgacg aacaacccac gtgattcatc acgaaagcac cgtcacgaag gttcagtttc 780
agaccataag cctgtctgta gtaacgcagc ccagtacaaa gagcaaatac agaacagcag 840
caggaagtac catgccgata gcatggagct aagtcccaaa cgtgaatagg atgctgcaat 900
cctctcccca tttctgcggg gatttggttg gcagcccat gatgactgca agcagcagta 960
gccaccgat agaagtcaga tggctatgtg gccagataga aaggagaaac gggccgaatt 1020
gcggcgtagt ctcaccatg gaatatgcc caaacaaga tgccggcaag aagcaaacctc 1080
ctccgaccag attgaaagga tacagcgaaa gctgtggcca gtatcgccct gcgatcacct 1140
ggagcaacaa acctacaaaa gcaagtcctg atatgagaat atgccttccc tatagccgaa 1200
gcgtccctgc cacatagtg tgtatccgaa aaaatagtaa acagtcttag tgaagaagac 1260
agatcagctt tatctattag acctattttg gctgctatca aaagacctt tccttttgct 1320
ttctaccca cttgggcacc actgtctcca agaacttttc tttgttcttg tgaacccatc 1380
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tcacccgat agccatgacg tgcaagtacc gagctatctc tatacgtgct tgcacgcac 1500
gctccagccc gttgctgaga tacgtgtaat ctcttgcggt gcatggaatg aagctccatg 1560
agaagccatc catagtccca acgccactgt gattggcgga tatacttaag tatggggtca 1620
tttctcttt ct 1632

```

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4578 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...4578

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

```

ggcttgccca gccggaattg cgctattggt tctgtgagaa attcaatggg tgtttatcgg 60
acttcattggc catgtcgggc aaatgaatat cgcaggggaat cggtcctcc tgttggttcc 120
attcatccta agagcgactt cgacgatcca ggtatcatcg ttatcaagga tggttctatg 180
gcggcggtat cagtatggcc gtcagtggat cttgggcaat cattggaatc tgggaagcag 240
tatcgtgggtg gttatattca cttcgattat gacaagtatc agtgtgtaga gtgtggaaga 300
aagttgggtg tgacaagaag gccgattact ttggcctgac gcggccactc tttcgttaat 360
ctatctgttt aagtaattcc taattaataa ataactctca aaagaaagag gcttttaata 420
tgaaaagaat acaactaact ctatcgctct cttcgccggt gttgccggtt tggtcgctca 480

```

aaatgcttac	agggagtaat	ttcatataaa	atctcggttg	acaaaaccgg	aaacaagggtg	540
tactgaatgg	tgcggcagat	atgagtaatt	taaagctcaa	gagcactcga	tgatcattgt	600
tacgcctatt	cttcggtcag	aagatgggtac	cagccggtgg	aatttccttc	ggtagtcatt	660
acaggccgca	atagaacaaa	agctctaagc	gtgaaatcgc	atttagttcg	gctttgcccc	720
aagcaaaaaca	tgcagtcaat	acattcgccg	tcataatggg	aagagcgagc	agtttgcttt	780
tacagagAAC	atgcttatgc	atcatggatg	atggatgcca	agtttggtgt	tcggaggagg	840
tacgaggttg	tgctaaatgc	cctgtaggtc	tctcgagtaa	tatgttcctt	ttgatccact	900
cttcaatccg	gcagaggctc	cttatttggt	gcacacatta	ctccggcaga	agaagtggaa	960
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agaacttagt	gaggccgaat	gtaccgtgtg	gcaatgtctt	atcctgaggg	gcaccaagag	1560
cgtttggttg	tctgaatacg	acccttaagt	atctccctga	aagtgtaacg	ggccgaacaa	1620
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caacctcgat	atgtgcttgg	caaaaagtaa	gtggagtttt	ccatattgat	tattaagggtg	1860
cacgggactt	ctgttttcgt	gctctttttt	gtggcaaatc	aagtccgcct	gatcaatggt	1920
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ttatgaaaac	cgaattcaag	gagaaaatgt	agtgtgatga	tttttcggat	aggaaggcct	2040
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ccaaaataga	tgaaaaatag	caaaaagaag	cgccaaagca	gccaaacgct	tcggcgaggc	2640
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cgccagttca	acctgatgtt	tgacagggag	tgggctctac	ggccgacggt	gccatgaagg	2880
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ggacgaatga	agatcccttt	cggaatttgc	catatcgcca	aggctttccg	aacgagatcg	3000
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acgaccgggt	gaagagctgc	aatggttgag	aagtggaaaa	acctccgtat	gcagtggcac	3120
cgcgccctcg	gcttcgagac	gacaaatacc	gtttccatga	tcatgacaag	ctggcacact	3180
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actggatcgg	atgttctctg	cattctctct	ggatcgtatt	gcgaagaaga	gacttccaag	3420
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gacctaccgc	tatcggaacg	gatggagcag	gagcgtgtgg	agatcagccg	tttgaatgct	3720
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gcgagaaaaag	accgaatgag	gaaaaacagc	gcgtcacgac	aacgaagtgg	ccttcaacgc	3900
ctatgCGGAC	agcaccaact	caagaaagta	tctgttgatg	gatcgaccgc	atacgtttac	3960
atgcgctggg	aacaaacggt	acgggtacag	agcatccgat	cgccacctcc	cgtgtggagt	4020
ccactaccaa	acgtatcgtt	tagtaagaaa	tatcatggta	gatggaaacta	taactccgaa	4080
aagccggcac	gtatcacact	ttacaggaat	gagaagataa	gtcgatcacc	ggcttccgta	4140
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ctatggaagc	aaagcgtccc	tgcatcgagc	gcaaatctcg	tacccatccc	ctcctattcc	4260
gcatacgttt	tatcgtaaaa	ctaagtggca	ttattcctga	agaagacaag	aatgaaagcc	4320
gatccgattg	aaatttttagt	ttcgaatgac	gatgggtttc	ggcacagggt	atccgcgagc	4380
tggcagaagc	cctgcgccca	ttagggaatg	cacgatcgta	gctcccgcag	ggccacgatc	4440
cggggcttcg	gctgccattc	ctctactctc	cccatcaagc	tcaagcttcg	gcacagagag	4500
gaaggcctaac	ggtatacagc	tgtacgggga	cgccggtaga	ttgtgtgaag	ttggcgagaa	4560

cacagtcttc aaggagcg

4578

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1391 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1391

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

```

ccacagacca aatgggggatt gtagccgaac tggatttgcc ataacgctca tattgaccat      60
cactttctca tatgggactc ccatacgctc ggcaacggat cgatgattcg gaggttggcc      120
tgatgaggta ctaccaagt aatatcacgt gcgaaagatt gttgcgctcc atgatctcca      180
cacagctggt gcacattcta cgacagcatg tttgaagact acctgccctt cctgatacac      240
ataatccaac gattatccac cgtttcgtgc gtagcaggac atgccgatcc accgccttca      300
tgatcaaatt atctttggcg atgccattgg agtgcagcac agctccataa cgcctacttc      360
ttcttcggta gctcagagca aaacacaacc gggccatccc cgaatagcgg acaagtggct      420
cgatcggtat aatccgtaaa actgtcatct tctccgtagc gatcacaagg atcttgggaat      480
aacgccccga cggataaaat tggctcccac ttcaagggca taaataaacg tgggacaggt      540
gctgcatat cgaaagaaaa gatgtcgcca caaccgattt catgagcacg atgctggccg      600
tggaaggga atgatagtcg ctcgagttgg ttgcaagatc aagccgtcga tactcttggg      660
atcgatacca tgacgttcga agaggtttgt gccgcacgga tggccaaata ggaagtcct      720
ttattcttgt ctgaggatc cgacgctctt tgatccccac acgggtcatg atccattcgt      780
cattgtatca accatttttt ccagatcgtc attggtaata acatcttcag ggaataggcc      840
ccaacggctg ttatagccgc gtttatttta ttcataatcg aattgttgca taatggacgg      900
gcaccggccc tttttaaaga ccatatcccg cggaaaagat tatttgtggc cgctaaaata      960
aaaaaaaaagt ccaaagaac ggtctaaggg actcttttgc tcgttcttgc cgcctaagcg      1020
acgaccggct cgaccgagg caagcaattt ttacactgcc acttcttttt cgattgccac      1080
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cgttttggac tgtcttcttt taggagtgcc atttttatatt atttaaattg ttctttttgt      1260
tccaatagtt ttccagagaa tcccacctcg aatcgtgagc ggtcataccg gattcttctg      1320
ttgttcacgc gcatctatcg ccagcagatc ggacattcga ttcacatctt cgggtcgcac      1380
tctccatccg a                                     1391

```

(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

```

gacgatgctc cttgctgata atcgtagcca taaggttacc gccgaaagcg gacgtgtcat      60
cagcagattg cgttcgtcac cgatctcaag cgatgtacgt ctgctgtaag acctgtacgc      120
aagcgagaag agagacgggg accgaggcgc gaccaatagt cgtagcaccg aagagtacga      180
tctcaggctt cttgtctgaa gaatttgggt aatggcctga gcgtaaggct cagtaaggta      240
gttctgagct tctcatcgtc tacgacaagc accgtatcgg caccggcagc gatagttcct      300
taggcaagtc agcaacctta tagccacaaa gaattgccgt tacttttctc cgatggtgtc      360
tgccaattca cgagcctttc cgatgagttc gaggctacgt tctgaatcac tccttcgcgt      420
tggtctgcga agacgaaaac actttatata attccttacc catagttgct tgttggtcag      480
atgatgaatt ctctttcagt ttattgaaga taatgtcagc agcttcttcg ggagtgtatc      540
ttcatgcagt gctcccatgg ccttggtccc cttagtgaac gacttcttac gctcgtggga      600
gaaccggcca aaccgattct ttccggatca acatcaagtc gcttgctccc cagcactcaa      660
taggtctgtc gaaggtttcc ataatgcacg aacgcgcagt tagcgaggct tattagccgt      720
agc                                          723

```

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3052 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...3052

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

```

agccactcac taatgatacg ggttttatca tactcgaaac catatctgtt ttacaccgt      60
ctttcaaaaa ttgtatttca aaagaagttg gtttttgga gattcccgat ccaacataaa      120
cgggtcgaaa cgaagagtat cctgaggttc aattttaccg aatccaatac gatgctacgc      180
attttgacca aagcaaaaaga gcattgcttt ttccacttga attggctccg tataaaacgg      240
ctgccgaagg agtttgtaag ctcttttctc aatgacagat ttggaaagtt ctttatggca      300
gaagcttcca tgctcaaagt tttttcatct ctgaatgagc ggaattctta aaagtgaagt      360
tgaccaacat aactcacaca ataattatgt gaggcaaagt tatctaaca gcccggaaaa      420
gcaagaaaaa cgagaaaaaa ttcacaaata gcggccttgc gttcttttga gggagcaaaa      480
gatacaccat agaaagattg tagacaaaag aagaacaaca aatctcgagc cggaaatcgc      540
ggaaagtgcg gccgcaatct tgaaaaagtc gcgccaaaat tttttcgttt ggttcggggt      600
ttgaaaaaat ctgcgcgcgag agcggaaatt ttttcgccca cgtttttagg aatagcaaac      660
aataattttc accggcgcga atgcaggcga ggagagatgg ctgcaatgct tttgtattgt      720
tcgtcaagga gtaaaccgcg caagaggttt tgttccttct tcctgtggcg cgtcgagcgc      780
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ggccaaagca cctatatctt ttaggggtat gagaaagaac cgttcggccg attgcagctt      900
gccgtcgtgg cagctgtcat tataggcttg tgatgctctc ggcatgtgcc aatatgggta      960
gcgcggaggg gggccttat atgtgacgcc cccgcgtttg ctcaaggcta cgccggcaat      1020
gggtagcaca agcaaacagg caataagatc tccctcctat tcgatgaagc tatccagaat      1080
tgaaacaaaa cgagacgggtg atcgtctcgc caccacagat caaacagcga aaatatccgt      1140
ctatggccgc atgtgacca tcgagctgcg cgacaacttc gcgacagtac cacctatacg      1200
atcgacttta ccaacggttt ggccgcaaca acgaaggga tatcctggaa aacttctgct      1260
atgctttttc caccgcgatg tacttgattc gatgcagatc ggccggccgg tgatcgatgc      1320
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gcctatagcc	agttgtccga	ggcgttgctt	tttctccgga	ttgggtaccgt	accgaggtgg	1560
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ccaaccgttg	gctctcgttg	atacggcagg	cgtttccgta	gcacgcaagc	ggatagcttg	2220
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caaagatttt	catctacggc	ataccgctca	tattcggttt	gggagtattg	ctgtcgggtt	2940
ttacggattc	gatccgatca	aggataaaca	aaacaagctg	aaggagaagt	caataacgga	3000
ggcagcgaga	cttcgccgac	tcctccggag	ggacagtcgt	attcgatgtc	cg	3052

(2) INFORMATION FOR SEQ ID NO:862

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

atatattcct	tgctcaggag	ggtgccgcaa	agctcccgga	agactttgac	ccacaaccat	60
ccgttacgca	tttgacgatt	ttgggaaaca	cccgtaccaa	tcgttcccgc	atagcgggca	120
gcggttaagt	ttgtaatgag	catccgtttt	ccggcggtcg	tcgtcagcag	ttcttcgcat	180
atttgacggg	tataaattcg	atgctcttcc	cgaatgtccg	ttcgtccatg	gcgcctgctt	240
caatgcagcc	agagcgactt	cccattgctc	cgctatttcg	gcgtcggcga	tcttcgtccg	300
gcgaccagtt	tatagacgga	aagacctttt	tcggtcggga	taacatcttc	ttctcccggc	360
ggatatattc	tcgcaggatc	aatgtctcga	tgtggccgca	cgtgtggcag	gcgtaccgat	420
gccgcaaccg	gcgagggctt	tcgggcttct	tcgtccgcaa	cttcccgtcc	ggcgtgctcc	480
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gtttctcctt	cttctacagg	ctcttccatc	gatccgcgat	ggctttccag	cccgaactaa	660
cccgtctctt	cgcttttatc	ccgaaagatg	ctccctttga	gagagtatcg	ccgtcagcgt	720
ttcttcgatg	gccgctcgga	aaaggattcc	agcatacgca	cggtgaccat	tcggtagagc	780
acctttcgtc	gcgggtcagg	ctgtcggact	tttctccggt	aaggagaatg	gcagggtggtc	840
ggttactttc	gtatcgtcca	cgctccggcg	gttaagtgtg	ccgcagttag	cttttcgacg	900

taatcgccat	aatcgggac	atctttcaga	cttctaatag	cgaagggatc	tcttcaaaga	960
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gctttgggca	gagagagcgt	cttttcgcgc	gtatatccgt	atcgcttggt	ggcttcttct	1080
gaagggcagt	cagatcgtag	agtaaagggtg	gtggcacagg	attcggtgta	cggaaacgga	1140
cgaaacgatg	agtgcctcgc	gcggatccag	atctttatcg	ccctgtccgc	tgctctgcgg	1200
ctttcgtatg	tcgtttctcc	gatggcttga	cggagaggcc	ggtgggcagc	gcatggattt	1260
tccaaaacgg	tacgaccgga	aatcccgggtg	ctcgatatag	cggcggcaaa	tcacgcacag	1320
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cacttgcgga	tgatattgag	ttgcttcaag	gcggacgggt	cgctccgatag	gtcgttccct	1680
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ggctatgtcg	cggcgacccg	agggtttctc	ggcaatgata	catttcatgg	ggacgatggt	1920
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ccttcggcca	cggctttgac	ctgttctctc	ttttggtccg	gattaagcga	taaaaacggg	2220
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catatttttc	agatacaggg	tgctccttcc	gaaagggtt	tctgctgtct	ctcggtcagc	2340
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gattgcccga	atgcagcagc	gtcgtttttt	cgctctcgct	gaaagatagc	ccatataggg	2760
aaaatcgagc	cgcggctctt	tgcggatgct	gtgatggcca	gccccagact	gc	2812

(2) INFORMATION FOR SEQ ID NO:863

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 752 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...752

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

tctttgggcg	gatacttgaa	tttgaaattc	ctcggactct	tgaactgcag	atgtagtcag	60
ccttcaagtc	gccatattcg	ggatccgtca	gatctccgcg	agcgtatagt	tcgttcgggt	120
gtaaatatcg	cccatcggtg	tcgtcttaca	gaaaattcga	gcgtatccac	tctggccgaa	180
accggatccg	aaggagctgg	atagaacctc	cgatcggaga	cagatcatca	tcgcaggcta	240
ccgtgggaga	gccattaacg	aaaaaacaag	aagaaggat	ctcttcataa	taatgtgaat	300
cgttgggttt	gcgtggaaa	gcagataatt	aacgctaate	gctcctgcat	attgtttttt	360
acggcgagtc	cgggcagaat	gagacaaatt	agtggccgtc	aaaagatcgc	tatagaagtt	420
atcgaaagct	ctttcatagt	ctctttccct	tggtatggga	ggaaagcctt	cccctccaaa	480
gaggatatat	gtcggtcagc	tccggtgcta	tggtctccga	tccctgaatg	acaccggctc	540
atatcggatg	gccagacggt	tcaaggccaa	atagtcggac	gactgctcat	tacggacagg	600
tcatcgggcg	tgatcttgtc	gaatccgagc	ttaccgagag	ggtctccggg	atcactccct	660

gtccggcatc atcgtagacg gagtagccac ttttgctttt tgcaggcaag gatcgtccgc
 atacatcttc ttcagtacag gcagccaacg cc

720
 752

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

gatgcggctc	acgggacgta	tntntccgga	gagtcgcgact	tgcgccgtct	gcatacggcc	60
ggcgggataa	cgatgtccag	actcgacgcc	agcactgcga	gataacggcc	agatccgtag	120
ccggatcggc	tattttgata	cctccggaat	gttcagaaac	acatccttct	gtatgagctt	180
gaagccggca	cgtttcccg	tacggctaag	agcatgttca	tccgccgaat	atcgaagccc	240
gtggcgaaacg	ctgcggattg	gcataaatgg	ccgagctgac	caaagcctgc	gcttgatgag	300
tatcgggcga	atgccctcca	tcgctacggc	tatggctatg	ccatgaggtc	ttccctattg	360
cgtgtgatga	gatgttcgct	cggattctcc	acccacgcag	accgtcctgc	cgcatctcgt	420
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atgatgctta	ccccgtcgaa	gagaagcacc	gtatccacta	tatgctccag	caccttcggc	540
cggctatgct	accttctttg	gtgatgtgtc	cgatgacgat	gacgggggaa	ccgtagtctt	600
gcagtatttg	agcagtaagg	cggcacattc	gcggatcgcc	ccacgctgcc	ggccgagctt	660
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gtcttggccg	ttgtcctgct	cccaggcatc	aaaactcttg	gctgcatgct	tgcccgatcc	1080
ggtgcgggca	ccttctctct	atcaatgcag	ttccactctc	cacaggcttg	cagttgcctt	1140
gccatttggc	gtatttgggt	ccgcacgaac	ggcagagtag	atcgttttct	ccttagccat	1200
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taatctcgaa	caggttgtcc	cggccaccga	tatctctgtg	atcaggccga	agctctcaga	1500
gtgcaggaat	ccttggcgga	gactatggcg	cggctgcggc	ctacgggttg	gaaagcgcag	1560
tcgaggtgag	caccgagcgc	atgggacggt	tgctcgtgct	gatcagctct	atcggtagat	1620
ggtcttgtgt	gggaaaaatt	cgcggaagaa	gtctacagcc	cgtgcatggt	tcggggccgtc	1680
ttgaagggaag	gataatcctt	ctgaaggtag	gtgccatgaa	agaatatcgc	tcataataca	1740
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acaatcccaa	atggcgaaaa	ggcttcggac	tcgcgggcac	gatcggctat	caggttcgat	1860
acaagagttt	gtcatcgatg	gcaaaagcca	catcgcgggc	aaatatctgg	tgtagtttgc	1920
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atctctatct	tgatatacct	gtccgaaggt	aagtgcctcg	taacacggat	tcataactct	2040
tggcatcgta	ggtgtcggga	gagcaggtgc	tccgccggtc	gaatccggca	accccgatc	2100
gacagtggca	agggagccgt	ttcgttggta	acgtgtggta	gtatcttcat	cattagattg	2160
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cggtcggatt	gcgtgcgtgt	tttggcgaaa	acacgcgcga	gaaatttttc	gttttggttc	2400
caaaattttt	acttctcgcg	ccacaacgaa	aaaattttcg	cgccacgtct	ttccaaccgt	2460

attccggctt	tttctcgaac	gacaaaagag	aaaaggtggt	atgtgccatc	ggtaacttcg	2520
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aacttaatat	caatatcaac	aagaggatac	agcgatgaaa	ttctttatcg	acacagctaa	2640
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ctctgatggc	gaaagagggg	attagtgagg	aagacaattg	catgggcact	acttggccat	2760
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attcgcgagg	gcgaggagtt	ggcgctctgc	atccgcagat	cgtgggtaag	gtgccttgca	2880
cggccgaagg	ttcaaggcta	tcaaatactt	cagcgataag	ggcattcgta	ccaactgtac	2940
ctcatcttta	ccgtaggcca	ggccctgctc	gccggggggc	cgagtccaa		2989

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 807 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...807

(xi) .SEQUENCE DESCRIPTION: SEQ ID NO:865

gccgggaatt	tgtctcccaa	ctccttcaac	tgtctttccg	tctggaagac	atgctgtcgg	60
cctgattgat	cttgctcgata	cggtctttct	ctttcttact	gcttcggcat	tggcctgcgc	120
ctcttccttc	atgcgcttga	tctcatctcg	gacaaaccgc	tggaggcttc	gatgcggata	180
ttctgcttct	tgccggagct	ttgtcatgag	ccgttacatt	caggataccg	ttggcatcga	240
tgtcaacggt	acttcgatct	gcggtgtctg	acggggcgcc	ggagcaatac	cgtcaagttg	300
aaacggccga	tgtctttatt	gtccttagcc	aaagaacgct	cacctgaagt	acatgaatct	360
ctaccgaagg	ttgattgtcc	actgctgtgg	taagattttc	ctcttcttcg	tcgggatagt	420
ggtattggca	tcgatcaagc	ggtcatacag	cctcccatag	tctcgatacc	gagcgacaag	480
ggggtaacgt	caacagcaag	acatccttta	cctcaccggt	cagaacaccg	ccttgaatac	540
ggcaccaca	gtaccactt	cgtcgggatt	cacacccttg	gacggagctt	accgaagatc	600
ttctccaca	ttctcctgaat	agcaggaata	cgtgtggacc	acctacgaga	atcacttcat	660
cgatatcgcc	acgtgacata	cgggcacttt	caaggcogtt	tcgcaggggtg	ccacacatgc	720
ctgaatcaga	cgatcgccaa	ctgctcgaac	ttagcccttg	taagcgatcat	caccaagtgc	780
ttgggatgcc	gttcaccggc	atgatat				807

(2) INFORMATION FOR SEQ ID NO:866

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 746 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...746

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

gattagtttt	tgtttcattc	gaatgaggtg	gtttttgtat	ttggagacaa	tagttacgga	60
gccaagcggg	gaacagacca	ggaagcatcg	ggccggagtc	gtacaggaag	cgatcgtgca	120
agcggttttc	gcgcccttgc	caaaatttat	tcgtaccggc	ttcacggcaa	agccacccca	180
agtgtcagga	cgtggccagt	ccgaccggca	tatttgagcg	actccttcat	gaattcctgt	240
acgataaaga	acgccccggg	ataggacgac	tctgtggcga	aatgcgcgcc	cctaccgact	300
tttgtagcga	cgtgtagcaa	aataagcatc	gctaagctcc	ggcctaaaa	acgtacatcc	360
ccctccacat	gtatctgacg	ctccagttcg	tgcaagagaa	tgtgagacag	acgtgcggat	420
tggcagccat	ttgctgcccc	tgcgactctc	atagttgctg	tagaagataa	attcgttggt	480
cataaactcc	tgagcaaaac	ggttcgcgta	ctgggatgac	cgtcaggagt	agccgtccca	540
cgataacggc	tgtaggctca	tatgttttgg	cttcgaccgc	atcttgacc	atctggtgac	600
aagggtcga	ggagtaggtg	tcagggtcgt	ggcggaaggc	ttcgttgta	tattcccgcc	660
tgatattttc	gaaatgtaa	tccatgtttt	gnggntttta	ttgtccggac	aaagttatgc	720
cattggaatg	gtcgtccaaa	atcctt				746

(2) INFORMATION FOR SEQ ID NO:867

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3082 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...3082

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

tgcttaatag	tttccataga	gtccgtacct	cgttttttgca	gacgagaacc	agctctttcta	60
tagaaggagg	caaaaataaag	atagccaatg	ccctatctca	taatatctct	tgatgctctg	120
tgctccaacg	acatcaacgt	cgaaaataca	tttttctctt	ctttcaggat	ccgctctacc	180
tcacttttga	gcgtgcatag	tatttgtctc	tgtacacctc	ttcgtactct	acgaattcgt	240
tggccctatt	cttcgtctga	attcttccgg	agacaagaag	taatactctc	gtccttctgc	300
tcttctccac	gaggtgcacg	gctggttgca	gaaatagaga	aataagggtta	agctctctgt	360
ccgtaagaag	tcgttcgata	acgggtgctc	tactgttccg	gatggggccg	agatgatgat	420
tagtttggtc	atgggggaatt	tgtctaaata	tgtagtggaa	tggctataat	acgttcagta	480
cttgctcttt	atctgttcta	attcgtcttt	catctgcacg	acgatttgct	gcattctccaa	540
tgattgcttt	tggagccgag	cgtattgatt	tctctgccga	tttcttgta	atgaagctga	600
gttttttccc	ttgtccgggc	tcgccttgca	tggtttgaga	aaataagaaa	gatgattccg	660
caagcgatgc	ttctcttcat	ttacatcaac	ttttcgatat	aataaatcat	ctcttggtcg	720
aatctgttct	tgtcgaagtct	ttctctgata	ttttggttag	gttctcttct	atccgctctt	780
tgatcgttgg	atccatcggg	gttcatactg	ttcgatttgc	agaagcaaag	aaggatatta	840
gatattttct	ccgtgaacac	ctgctccagc	atagaccctt	ccgctcgcgg	aatccgatta	900
gctgatcaag	ggctctccga	caagtctcaa	tacgacagcc	cattcatctt	ctggaatttc	960
ttcttcttta	tcttcatcta	ctgaatgact	ccggggatcc	gaagtagctg	ttcgaaccat	1020
cctcctgcgg	tacttccact	cccatctttt	cgccgaattc	cttgagttgg	aagaaataga	1080
ggacatcttt	tctgtatcga	atatctgaga	tacaacatcc	gtactacgga	ttcctcgaga	1140
aacaagctga	aatccacttt	ccccgctccg	atgtcgccga	aaccaaagcc	ctgagaggta	1200
gttctctatc	acggtaacgg	ctggaatctt	ggttgataga	tcgaactgtt	tgctattgag	1260
cgacttgatg	gtcgaagtat	ttttttatcg	gcgaattgaa	tcgtatgctt	gccgaatccg	1320
gtctagatag	gatcatagtc	ttttttatat	gcggttagga	gagaaaaaat	aaaagagaat	1380
cacagactat	tctataccat	agtcgggtgat	tctctcataa	actttttaca	ggttacgccc	1440
gtggcactgt	ttgaactttt	tgccactacc	caaggacaag	gatcgtttcc	cccgatctta	1500

ttctcgtttc	ttatcggtgc	tggggagcag	ctgcaccctg	aggtctgctt	gccgcatccc	1560
tttgtgcttc	tgctgggctt	ctatatcgtc	tttttgtgtc	cgatacttac	tcatgtcgtg	1620
cgttgttcgg	ctgcatgtcg	gattttctatt	tgcgcgctgt	gttccactct	tcttgggaag	1680
gagcctccgg	taccggatc	cgagcacgca	ttaggtcgct	acggctctac	ggttcatggc	1740
ttctaccatc	ttgcggaaca	gttctaagat	tcgagtttat	agataagtag	tggatctttg	1800
ttttcgtagc	tggattctga	acggaattac	gaagctcgtc	catctcacgc	agatgttctt	1860
tcaagactca	tcgatagtat	gcagtacgat	agctttctca	aattctttga	tatgcttttc	1920
ccttgagttt	catccgcttc	acgcaaattg	catcctatgt	atagacacgt	ttaccatccg	1980
taatggggat	tagaatgcgc	tcgtacacgc	ggcttggtgc	tcgaatacct	gatgaaccac	2040
aggtggggc	acttctgcat	cagatcccat	ttacgttgga	aagacttgta	agcttcatcg	2100
aaaagcaatc	ggtcagctct	tctgctttct	tacctctgaa	tatttcttgc	gtgatagaga	2160
ttctatcgcg	agtgcacgca	tcagatcttc	cttgaagcct	tcgaatcatt	ggcttctgca	2220
taattgtcaa	tcagagcctt	acatacgtcg	tataggtatt	gagtacatcc	ataccgatac	2280
gctctcccat	caaagcatga	cgggacgggt	ataaatgact	tcacgctgcg	aattcattac	2340
atcatcgtag	tcagcagatg	tttacggata	ccgaagttgt	tctcttccac	cttcttttga	2400
gacgtccac	ggacttactc	agcatgttgt	tttcgagcac	ttctccttcc	tgaaaccta	2460
acgatccatc	aatgatgcaa	tcttttctgt	ggcaaagagc	gcacagatg	atcttcaagg	2520
gaaacataga	atatggacga	accgggatac	cctgacggcc	ggaacgacca	cgaagctgtc	2580
tgtccactcg	tctggatcgt	gcctttccgt	accaatgata	gccaaacccc	cggctttctt	2640
aacctcgtag	agagcttgat	gtcggtagca	cgaccggcca	tggtcgttgc	gatggaacag	2700
ttcctttctg	accggcctga	gctacaatct	cggcctcctt	ctgagcaatt	tggcattgag	2760
tacattgtgt	tggaatgccac	gcaagcgtaa	catcggtcca	acaattcgga	tatttccacc	2820
gaagtagtac	cgacaagtac	agtctgccct	cttcgacaag	acgtacaatc	tcttcgataa	2880
ctgctgcata	ttttcacgtg	cgtctttata	gatacgatca	ttcatatcct	tacgggcatg	2940
ggcttggttg	tcggaataac	tacaacgtcc	agttttaga	tgtcccaaac	tctcccgctt	3000
cagtttcagc	agtaccgggtc	atccctgcca	gcttatgaac	atgcggaaat	agttctgcaa	3060
agtgatagtt	gcaaatgtct	gt				3082

(2) INFORMATION FOR SEQ ID NO:868

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 470 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868

ggccactgtc	gtgaaatctg	ttcctccggt	cgggtgctat	gggctttatt	tctccattgt	60
cgggtgtgatc	atctttacgg	gccttaccgc	tttcgatgga	acaaaatcaa	gcagatgctg	120
gctcaaacgc	aaggattcga	agagggaatg	tagttcgcaa	agtagccctg	atgggagcct	180
tgacgctcta	tctggattca	tcaatctttt	cctctatctg	cttcgcttct	tcggccgaag	240
ggactaatcc	ctcccatgga	aaagacaaag	acaataataa	aaatccctgc	caactggatc	300
gttggcaggg	atttttcatt	gaaacaccgt	tagtcnatag	atctcntaca	actacattga	360
cgatcctccc	ggggactaca	atgacttttt	tcgactcttg	ccttccancc	aacgggctgc	420
ttccgggaac	aataaggctg	ctgctctaca	tcttctttgc	tcatatcggg		470

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2989
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

ccgtggctca	aaagctcttc	ccagccgcgc	tccgtgttgt	cttccgcttc	tctaccggat	60
tacgcagggc	acgatcccc	ccggcgatca	gcccgatgcg	aatgtggggg	gcataaccgaa	120
tgtgggagga	atctccgaag	catccagacg	cccaagcggc	cgctgggtgcc	ggctcccatg	180
tagaagagtc	gcccacctgc	tccatgcgtg	gtatgatttg	ttcgaccagt	cgttcgatca	240
tcggatagtc	cggctgacgg	cttcggccac	tttctgtcc	tcgcggttga	tgtctcgagg	300
atctctctgg	tcgaattttc	ttccagtcgg	tcgtacaggg	aagctgttcg	gtaatcttct	360
caaacatgat	tgttgtgggtg	atattgtata	agccctccat	cggactttgc	agtaccgatc	420
cgagcggttaa	gcctcttttt	tgatgacgct	actcaacact	tcccagataat	gaaaggctac	480
agagccgatg	agtggagggg	gagatcagga	cgattgtatc	ggagcacggt	gcgcacaaga	540
agtcgtcgaa	actattctgt	acaaggctat	atacagccgg	aatgtccaat	gctgcgcgat	600
aaagggggag	aatccggcca	agaagcgatt	ggggaaagct	ttcgatagac	actctcgata	660
atatcggcag	acgtcaggcc	atactctgca	ggaaagcttc	gcacagcccc	tccggcatct	720
gccccttgag	aaggcgccga	tgaacagccg	tcccataacg	gctccgctcc	cttcatctcc	780
gaggtatagc	ccagtgggga	aacgtttggt	ttgatctccc	gaccatcgaa	cagcaggaat	840
tggagcccg	acccaatatg	caggctatcc	cctcggaatc	gcacagagag	cacgggctgc	900
accgagcata	tcgcccggcg	cttcgatgcg	gcgcagtggt	gcagcatact	gtccaaggct	960
tcatttagca	taggggcttt	gcccgtgtac	accctgcacc	gtagaaatat	acagctcgga	1020
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ttcctatcct	gctgaaatgg	attgatacct	gacgtttgga	atcgctccagg	ctttttccct	1140
ccttgcttat	gcaccaatcc	gtcttggtgg	aaccgcgtct	ccaatcagaa	tcatgatcgt	1200
atctcttttt	tccggctcaa	caatgcaggc	ctatggcggt	aaagaaggca	ttgaagatga	1260
ggagttcgta	actgatttat	agccgcccga	ccattgctcc	gaatggctct	ggagaatgta	1320
gcaagcaccg	gagcaacaag	ggctgccaga	gggacgtatc	tgtcccgtac	tgcccttttg	1380
tggcgatgcc	gaagaaaaac	agtcccaata	tcggcccata	atgtaactgg	ccagtaacgta	1440
gacggcatcg	atgacgctcg	tgttgcttac	atattaaaga	agtatatgac	cagccccatg	1500
acgacagcca	tgccgatgtc	acgcgatggc	gtatacgagc	cgattgctct	tcgcttcggg	1560
ggctgtgtct	tggaggatgt	ccagcgtgaa	cgaagtagtc	agagccgtea	gggcccagccg	1620
gcttgcagag	aaagccgacg	acaccagtcc	caatatgaac	aggatgctac	aacaggcgga	1680
aaatagctgc	ccgtggccaa	gagtgggaat	agctctcgct	ttggacggat	gggggagtc	1740
gtggctgtcg	gcataagtat	tagacagggg	accgagcatg	aggaagagtg	ctatgatgaa	1800
gaactgcac	acgcgcgggt	gaggacgttc	ttctgcgaat	cgcggtagtt	cttgacagctc	1860
agttgcgctg	catcatgtcc	tgatccaacc	ccgtcatagc	tattacggtg	atacgctgc	1920
cagaaaactgc	ttgaagaaat	agcgtttgtc	gttcacgtca	cgaagaaaaa	catacgggag	1980
tagtcgctcc	cgccgataag	gtcggctcgcc	ctccccatct	gtcgcccaag	tcggcagaaa	2040
tatagacgat	gcagagtaga	ccgagacgat	gaggcagagg	gtcttgaacg	aatcggtcca	2100
gatcagcatt	ttactccgcc	cttgaacgta	tatagccaga	cgaagagcat	cgtcagcaca	2160
cattggccat	aaaaggccat	ccgaacgggt	cgaatacgat	cagttgagcg	tcaggcatac	2220
gagaaaaagc	cggacagccg	caccgagcat	cttgagatga	agaaaaacca	tgcccccgtc	2280
ttgtaggacg	agaatccgaa	ccgtcttgca	agtagccgta	aatggacatc	agattcatcc	2340
ggtagaagag	aggatcagga	cgaaggcaat	aatcagttgt	ccggccacaa	agcccagtac	2400
ctctgcaggt	aggagaatcc	gctgccggcc	accatgcccc	gcacggatac	aaggttactc	2460
ccgatatacc	ggagccgatc	atggcaaaaag	ccaccatgtc	cacggggatt	tgcgattgcc	2520
cacaaagaag	ccggcattat	ccgctttggg	cccgtagcaa	aggaaatacc	gaaaaggaag	2580
acgaaataga	cgataacgtc	agaatagcta	cgagaggact	catatcaa	cattgagacg	2640
ttaggacagt	atcttcttaa	actctctgca	aagctacgga	aatacgtcaa	gtactcgcaa	2700
ccagcataac	agacttcccc	gtgagttgca	tggctgtgct	agtgaatat	cttcagcaga	2760
cttcgggcta	caccataggg	gttgctgggc	tatctgtaga	gcttgtcgag	ccacggcgta	2820
gaggccggat	cgttatactc	taggcttata	tcgttatggt	ctaaggaatt	cctcggtatc	2880
ccttacggat	ttctccctac	gctctatagc	tcatttccat	acgctctagg	ggatagccaa	2940
acacaccgtt	cagcaaggaa	aagagggggc	aaaaaaactg	taaaaacgg		2989

(2) INFORMATION FOR SEQ ID NO:870

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 362 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

tgggttaagc gtacatatat acaaaggtag cacagttttt aattaacttg cgtaatagcg	60
tctgtaaaac agattggcta aagatgttat ttgagtcttc tttgtagatc gaaaaaagat	120
atgaaacaga cttttcgctt tatcaaaca ttgaacggat tactcacctg aagccgaatg	180
ctacgatgat gttgttttgg cttcggtggt ggcagtcac atggctaata gttcgttgag	240
tactactatc atgaaatttt agagtaccct atcaatctta cgatcggagg tcataggtct	300
tttctcatca tggagagacc atgaccttgc tccagtttgt gaagatgtgc tgatgggtcat	360
tt	362

(2) INFORMATION FOR SEQ ID NO:871

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 911 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...911

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

agacgtacat tcacgggaaa ccattcatag cacggaagat accctgaagc ttcctgctga	60
taaggcagga tcttggccaa agcacgtacg cgaccttcgc cgtctcgctc agaatacattt	120
cgcgcatggc tttgatcttc tcgccttgaa gaacatatgc tccgtacggc aaagaccgat	180
acctacggca ccgaagtgcg agctatctcg gcatcgtgag gagtatcggc attcgtagca	240
acttttagctt ggcatactta tcggccaaag ccatcagatc ggcgaaatct tgatcatttc	300
ggcggctttt gtctccacct gtccttcgta tatctcaccg gtaaaccggt gatggagatg	360
tagtcgcctt ctttgaagag ggttccatcg attctacggg acgtgcctta tagtcgatgt	420
tcaatgcacc tgctcccgat agcagcattt gcccatacct ctggccacta cggcagcatg	480
cgaagtcata ctccgcgagc cgtcaggata ccttcggcgg cagacatacc ggccaagtct	540
cgggcgaagt ctcgatacgc accatcacca cacgcttgcc atcctcttcc actgagcggc	600
atcgtcggcg aagaaaacga tctgacctcg agcggcaccg gcgaagcagg caagcccttg	660
gtcagtagac gtgctctaag gagagcgact tgctcgaaaat ggggtggagc aattcgtcca	720

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gcttgtagg ttcgagcgca taagggttc ttcctcgctg atcataccct gacgcaagag 780
atcctggcga tcttcacccat ggcacaaccc gtacgcttac cgttacgggt ctgaggaacc 840
agagcttacc ttcctgtacg gtgaactcca tatcctgcat atgcggtagt gatacctcagt 900
ttctgctgca g 911

```

(2) INFORMATION FOR SEQ ID NO:872

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 759 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...759

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

```

attatattcc aaaacgtaat ttctcctacg aaaaggggaa gcaagtactc gcaatgtatc 60
gttcacggcc aaacaaggag aagtcacagc cctcgtcgtc cgtcgggtgg aggaaagagc 120
acatcggcca agttggctgc acgctttggg atatagatgg aggaaagatc tttttgggag 180
gggaagacat ttcgcaatcg aacccgaaac cctgctacgt cattatgcca tcgtcttcca 240
agatgactgc tcttcaatgc atcgggtggcc gataatatcc gcataggtaa acctatgcta 300
cagatgaaga gctcaaacgt gtagctcggg tggcaagatg cgagaatttg tagatcgtct 360
gccgaatgga tatgacactt tgatcgggtga aatggtgaga acctttcagg aggtgaacgt 420
cagcgcattt ctatagccag actttactca aggatgctcc gattgtgctg ctggatgaag 480
ctacggcaag ctcgatgttg agaatgagac actgatacag gccgggtatat ccgaactgac 540
aaaaacaaga cagtcctcat tatcgctcat cgtatgcgca ctgtagccat gcccataaga 600
ttgttgtagt caaagaaggg actgtagccg aatgtggagt ccggccgaat tgatggccat 660
gaacgggtgtg tttgctcgaa tggtgggcg cagaagtaag gaaacgtgag ttcgatgtaa 720
gcgatatggg gccgatctca taagatccgc catatcgat 759

```

(2) INFORMATION FOR SEQ ID NO:873

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 671 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

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gggaattttc aagaaaccga ttaaaaacaa attaatcggc ggcacgcac ttctcccgat 60

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agcctgctct attcgatgcc cgatcacaga agtctgacgt cggggggcagc atccgctata 120
atcctgcacc ctattatcgt ttggacagga cggacgtaag cggtatgacg gggtcggtac 180
acgcgctccg ctatttggtt cacttaccgt caagccatac cgctcggacg agagcacgac 240
agcgatacat ctacctatcc ggttcgggtac ggcaaaatct ccgactcaat ccgtgcactc 300
gctctactac cacttcacgg tgggcagtta ctttcgtcgg catcggtaca cctcgacgaa 360
cagcgctatc tcaaagctga caatgctttg ttcaaatagg aggcacgctc cagcacagtt 420
tccaaacctt ccttccttat ttatatacga tcagaacttt ctcatccttc agactcgctg 480
gtctttcccc cattgatcac taatnccgnt ggggcacccct attcgcttcg ttccagtcca 540
ccttcacatg aatacgtatt ggggatgcca caaagaccgg atgccttttt cgaaataggg 600
tattctcgtg gtacgatcgc acaaatcggc atcttcttgg cgatacaat ttccataaag 660
attacggcct g

```

(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3295 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3295

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

```

gtctcctata aggaacggag cttttcgatg gcttccctccc tcgtataatg ggcggacgga 60
acaagccttt tttgtccaaa aacttgcgga caaaccaacg gcgggcttgc gttccccctt 120
gacatagaag catccgcaga agagaccccg cctcttagca cgcggaagt ctctgcaaag 180
gcacggctct tgctgggaag acgtgaaagc cattcatcga gagcacgagg tcgaaagccg 240
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(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2828 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2828

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

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gcagcagtg	acacccctgc	aggtaccgat	acgcagcgtc	tgcttcagac	catgtcgaaa	300
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gtaggaaa						2828

(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 884 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

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tgaagctccg	agtgccacta	cagcaggcgg	tcacatncaa	aacgggtcttg	ccgaaccaat	840
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(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5574 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5574

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

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ccataagtcc	caaaccaccg	cagttgctca	cagcagaagc	cagtttccaa	ccctgcacca	4320
caccatgcct	cccgatatga	tccgatgttc	gatacccaat	attcgcaaat	tctattcatt	4380
ttcttattct	tcttattttg	tattgtatct	ttattcattt	ctcatttggg	cgtctgatcc	4440
gaccttctt	caaggcatct	aatcttattt	agtaagtaaa	ccgtactcgc	tttttcaagt	4500
ttttacggac	acacaacata	gtcacaaaaa	taggaacaaa	agccgacttc	tacaccgct	4560
atttcgatgc	ctatgagaaa	gaatctcccg	aaccgccaaa	tcaaatcgac	aacccccatg	4620
cagaggcttc	gacaaattcc	aaacagcttc	gacaaaagtg	agaggaaatc	gaaaaataat	4680
ttcaacacag	cctctttata	attaatccgg	ctttcaggag	aatctcaaaa	tatagagggt	4740
gagccaaaat	tttattttga	cacaccctct	tcgtccgtct	tatgtagtag	gatcagtgtg	4800
agtcagaagt	ttacacgaat	accggtagac	caagtgcggc	cgaaccgta	catcacgagag	4860
ccgaagcctc	atcggtgttc	ttaccgatga	tattgtcgtc	gcacgcgtca	catatcgctt	4920
gtcggctacg	ttgtccatgt	tgaaatagat	gtgggtgctg	gtgaaccaag	cttgaaattg	4980
taggatgcag	acagatcgac	agacctacat	cgggcaactt	ccatgattcc	acgatttctt	5040
tgccatcgct	tcgtactgct	gtgcattacg	cgttgccggg	ttgaatcctg	catagtcttg	5100
ccaaggaagt	tgtacttacc	tatgacatgg	aaaccttga	acagcctatg	tctgcccata	5160
cagcagccgt	catctgtgct	gcactctcga	cgtgagacc	ttgatatagg	ttatatcctg	5220
ccctgtctca	ttgccggtct	cgtgtaagaa	gtgtaactta	cattgttttg	ccaagtccag	5280
tcaccgagag	agacataccg	cgaaggctga	tctgacgaat	aggacgatag	ctgacctcag	5340
ctctacccca	cagtgaacag	catcaacgcc	attgagataa	acatactcgt	tccgattctc	5400
ttcgagggtca	cgcgatccat	ccacttcgta	tagtatccgt	gatattgaac	tcgaagtttt	5460
tgtgattcgt	gaatccatag	ccgacctccc	tgtaagcacc	ttttccatat	tggctttgtc	5520
attgggaatg	atagccccgc	agcatagata	ttgccaaaaga	gtggtgcacg	tgtg	5574

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

gctacagaca	ccgtgtcagc	aagctgatgt	ttctcggcag	cacctgtatt	acccgcgcga	60
tgcccgtcag	ccgatgcgtg	aggaagaatt	gctgacagtc	cgctggaata	taccaacgag	120
ccatacgcca	tagccaaaat	cgcaggatga	agatgtgcga	gagcttcaac	ctccaatacg	180
gcaccaatta	tatagcgtga	tgccgaccaa	cctgtacggg	cccaacgaca	atttcgattt	240
ggagcaagcc	atgtgcttcc	ggccatgatc	aggaagattt	acttggccga	tcgctgcttc	300
gccacgatga	ggaaagccgt	tccgcacgga	tttgtccata	cgtctgtcga	aagcatcgac	360
ngatcttctt	ctttcaatga	tattctctca	ttctgaagcg	gtacngcatc	accgcccga	420

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 850 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

tccgatgacga	actcgtcgta	gacgatatgc	cggctgacag	tctctccgcg	acatggccga	60
atcggacagc	tcggccggcg	tcttcgcccg	tgctgccctc	atcatcccgt	cctcctccgt	120
gccaaactcg	acgagcaggc	tgccaccacc	gtttgcgagc	cgcgcgaggt	gcattcctgc	180
cgagtgtgtc	ggtatcggag	gatggaacac	gggattctca	cgctttttga	atggatcgga	240
ctatagccct	tcagcgagca	gtttcggaac	cgtcgggggg	aatacgtcag	tctgatctga	300
gtatcccat	cttttcggga	ttcagccttg	tgagccatct	gcgcaggcgc	gtgccgaacg	360
cagggcggca	atcgctccgac	ggggcggaagc	gggcgcaggc	tctacagcga	gatcgcccaa	420
gccatggccg	accgggatgc	cctctggctt	cctaccgcca	ggcgaaggag	cataccgacg	480
ccatgcaaac	gcttacgaag	ccgtcttgca	cgcgttatgag	gaggggctga	atacggccac	540
gacctgacca	ctcaggccaa	tcggctcctg	gatgcccggtg	tgacgcgatg	agagcggcca	600
tgacctaccg	gctcaaatgc	aaactcatag	cctattaggc	tgcttttcg	actaaagctt	660
ttcttttctc	ccgttcgtat	caaactctacc	atcatggata	gaaaaataga	aaaaaagaag	720
acgctcatcc	cccgtaatat	tatccctatg	caggggggagc	aatagtaata	ctcgccttgg	780
cggctgggce	gtattcggca	atcacagcac	caagttcaga	gccgaacgcg	cttggtattca	840
gcattcgaca						850

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1461 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1461

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

tcgacttcga	gctcgggtacc	ctgcaaggag	catttttcgcc	taccatata	gaatgatgtg	60
actcgatgat	ggcattttcta	tgcctttttcc	cttgatagat	cacgcaaaag	cgtagcagaa	120
tcctccagcc	gctttctctc	catcacaact	caggtagccg	acggaatata	agttcagtc	180
atcctatcgt	agcaggggta	aagctgtgga	gaatataagc	gaacgacttc	gattgatcag	240
gtattacgta	cgacattgtc	acagactata	taggcaccca	tagaggccaa	tgctttccga	300
atgtgccgac	cagatagtct	atttttcccaa	tggtagcagt	ctctccgcc	agcctaaacc	360
ggttttttccc	cttactccta	tggcatgagc	ttgtccacat	atagctcgac	ggtagggtat	420
agctctttga	gatcaaccaa	gatgggagat	cggccacata	gccgtccata	ctatatatac	480
tctctactgc	atgatgatcc	ggctgtatag	atctttattc	ttgtggagga	tccgctccaa	540
tgctccggat	cattgtgccg	aaatcgctcg	aaaggcgttc	cacagagtgg	atgccatcta	600
tgatgctggc	atgaactaat	ctgtctggca	cgatcaagtc	cgttcatcca	caagagccgg	660
tagaacgcct	gtgttgagt	gtaaccctgt	tgaatatcag	agaagattcg	cgccgaatc	720
gttccgctat	catccctcca	atctgtcata	tgccgtacta	ttgcccggtga	gcagacggga	780
ggaaagctgc	cgggaagtcg	atcctctcca	gagatagagg	tataaaactc	atcatcagat	840
cttcccagagc	agtcagtcgg	agataatcgt	tcgaggagag	gtgagcattc	gtctttcctc	900
ctcgatgatg	tagctgccat	cgtgtatcag	atcctaagct	gcctgagact	cccgtttct	960
tccagctctt	gcagctctgc	ctatatTTTT	cgttcattca	ggttttttga	ttgtctgttc	1020
cgatttttcta	gtattgtatt	cggagcgatt	atgctgtcag	gtgataatga	gatacaaaat	1080
aaacaaacgg	gaaagaccgg	atTTatagat	ttaacgtcag	ttcggcgaag	aaaacgccaa	1140
tgtattcggt	ccaagattag	cggTTaacgc	actaattttt	ggaagttata	ggttgttctg	1200
ttcaggcaat	tgtatagggg	gcaatctgct	tctgcctgga	tcgaaccaac	attgaaattc	1260
ggattgcttt	tgacgaatgt	tgcatgccgt	atagggagat	gggctatacc	acagggcaga	1320
tgggggtactc	cgtagaggat	gacgagctat	cccgtacggc	tcttcgagct	acctgtagag	1380
ctcggcgagg	tacgccctac	agcgtagcga	gccgagccgt	aagttccgct	ccgtgagccg	1440
tagagggtggc	cgagctgagc	c				1461

(2) INFORMATION FOR SEQ ID NO:881

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3080 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3080

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

gcaggcggat	tcatacacaga	cctgaagatc	ggctactggc	tcggcaccag	ccgaagagtc	60
aggagaagt	gaagttcctc	ggcgttctgg	tagcttcgtc	accgtagccg	gtgtgatgat	120
gacctgaac	aagacctatg	gctttacggc	gatcaggctc	tggtggctcc	gcaggccaat	180
gcgatggcag	ccgtgacaag	ccgctgatgg	aaggcggtaa	tacgccttgg	attctctatg	240
gcgtagagct	atactggctc	tgatcctgac	gagtataggc	gtgcccgcac	tgcttttgca	300
ctgggtatgt	ttatcccgtt	acaactaaat	acacctctcc	tcacggcgga	ctcgtcagct	360

ggttcgtcag	cacccgctcg	aaggacgctt	cttcaataaa	ttccgcaagg	aacgcggtac	420
gctcatcgct	tccggattca	tgccggagga	gctttgatgg	gtgtggtaag	tgcgatcctc	480
aaatacatgg	gttcgatgct	tttgcccaag	aatggcacgc	catggcaggc	gccgaatggt	540
ggccatcggc	atgtatgcgc	tcatcattct	ctacttcatc	gtcgacagat	cagaggcaag	600
aaacatgaag	cataacaacg	aaacaaagaa	tatggaatga	aagagagatt	tctccgatat	660
gtaggcttcg	atacgcaaa	cgacgatcct	ctaccacttt	cccctcgacg	gacaagcaat	720
tggtgctgct	gcgtctttgg	ccaaagagat	gaaggacctc	ggcctgtgcg	aggtcgaaat	780
ggacagcacg	gctatgtcat	gggcagcatc	cctgcctctc	ccggttggtga	gcagcgcccg	840
tgatcggatt	cattgcgcac	gtggatacgg	cccccgacat	gacggcaagg	acgtgaagcc	900
gcaaatcatc	aaaaactata	atggcggcga	tttcgtctga	acgaggaact	gactatgcgt	960
gtagcggatt	tccccgagtt	gcgttcttca	aagggcatac	gctgatcact	acggacggta	1020
ccactctgcc	ggtgccgatg	acaaagccgg	tgtggccgaa	atcatgacgg	ctgccgagat	1080
ctgctcgcac	atccccgaag	caagcatggc	aagattcgcc	tccgattact	cccagcagg	1140
aaatcggctc	gggagtggat	cacttcgatg	tccagcgctc	ggtgccaaag	tccgttacac	1200
gatggacggc	agtatggaag	gagagtggag	tatgagaact	tcaatgcggc	ttcggccaaa	1260
ctgacgtaaa	acggcgcaat	atccaccacc	gctatgccaa	gggaaagatg	gtcaattcgc	1320
tgcggtagt	tgcgatctgc	atgctcttct	gcccagaggc	atgcggccgg	agctactgcc	1380
ggctacgaag	gattttttcca	ccttatcggc	atcaacgggt	cgtagagaaa	gcacggcgat	1440
cttatatcat	ccgcgatcac	gaccgcaaac	ctttgaagag	aagaaagagc	tgatcaaagc	1500
tgccgtagac	tacatcaacg	caagtaacgc	tccgacatcg	tgctcgctcg	actcaaagat	1560
cagtattaaa	tatgcgagag	atggtagagc	ctcatcccga	gattatcgaa	aaagccatgc	1620
tgccatgaag	cttgccggca	taacggccaa	gggtgcagcct	attcgccggc	tacggacggg	1680
gccagactct	cttatatggg	actcccgtgc	ccgaaatatt	tgccggtggg	atgaacttcc	1740
acggcaagtt	cgaatactgt	tgcgcgactc	catgcggcgg	gctgtggaca	cgatctgcc	1800
tttggctgct	cttgggctga	atagtcacgc	cacgaatgac	gatccgttct	tcccttttct	1860
acatcattaa	tagagaatgg	tttggggcct	cggagggaaa	gcctgcacaa	tgggttttcc	1920
ctccggcatt	tcctccatcc	gattcatttg	tatgaaacca	acttttccga	acgttacgct	1980
cgccagacgg	ctcttcccga	agtgggagcg	atggacagca	gcgattagat	ggttcgcag	2040
tccttgctcat	aggagccgag	gccttggttg	ccctgtcctg	caatatctct	gtgctgcagg	2100
cgtggggata	tcagcgttgt	cgatgatgat	cgctcgacac	tcagcaatct	ccaacgcaag	2160
tgctcttttc	cgaagccgat	ttgggacagc	ccaaagccat	tgccgagtag	ctcgttttga	2220
ggcgatgaat	agcgattgcc	gtccgggaagc	tttcccga	gatttacgga	gctgaatgcc	2280
gagatgttgg	ccggcgagtg	caacttatta	tccatgcttc	ggacaatgct	gagacgcgct	2340
atltgataga	tctgtctctc	ttgctctcgg	aattccttgg	atatatggca	gtattgccgg	2400
aggcgcgggc	aattcactgt	cttcggttat	ggccatccgg	tgcgttattc	gatcttttcc	2460
cctccggcga	agcggtctcc	gaggaagtgc	ccccagccgt	atcggagcct	tgcccgggtgc	2520
cgttggtatcc	tatgatggca	gccgaagcat	caaaatcctc	ttgggaagac	ccgccgaaga	2580
aactctcagt	ggccgtccct	cctcatggat	ctgttgcatg	gcgagtcgcg	cactatccgc	2640
tattagaatc	ctactaatct	gcttaatcaa	aataattccg	attccccctc	cccaaaacca	2700
tgtccttcaa	tctgatcgtc	gatcaaggcc	aattctgcct	gtaagttgct	ttcgtccgaa	2760
ataatagtat	agagagcatt	tcctttctgc	cggaaaagcc	ggacaggcac	tcagccatct	2820
cgctcgctcct	caccgtttcg	acaggctatc	tactcatctg	tggggcttcc	cgacgaagag	2880
gctgaagcta	tgtgagaagt	tgtgcagctg	cttccttgat	gatggggact	gagacccccg	2940
accccttcgc	ctgcaatatg	atcgccgcac	tttgggtgcc	gaccgactgc	tgcggtggct	3000
ggagcgcata	gtctctatcc	gaataccgaa	ttgctggtat	cgacgcgggt	actgccatca	3060
cttatgaacg	agtatccggg					3080

(2) INFORMATION FOR SEQ ID NO:882

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 840 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...840

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

gcacatggta	tcgttgcca	tattgtccag	catgattatg	tctgcaccaa	gcgtactgct	60
tcttcgacct	cagccaaatt	agacgtttcc	acttccagtt	gatcgagaga	gggagtgtct	120
ttctcgccgc	ttcgtatggct	tggggtaccc	tccggctacc	ttgatgtgat	tgtccttgag	180
cataatcata	tcataggtcc	catgcatga	ttatgtccac	cgccatggcg	aacggccatc	240
ttgtcgttat	tcgcataccg	ggtgccgtct	tacgggtatc	caaaagcctt	acagcgtacc	300
tttcaaagcc	tcggcatagc	gagcgggtcat	agtggcaata	ccatcattct	ttgcaaaaaa	360
ttaagtgcc	atcgttcggc	ttgcaacaaa	gccggtaact	gccttccaca	cgcaggatta	420
cttgaccgcg	ttttacggag	cgccatccga	tacataggga	gtccaagtca	cggcttcgaa	480
tcgttcgaag	cacggcgagc	tacctccatg	ccggatatga	tgccatcagc	cttcattaca	540
ttgtggctgc	agctccttcc	gattggggga	taatggcatt	ggaagaaagt	ctccatcggc	600
aatgtcctct	gcaattgcc	gatcgatcaa	tttttccaaa	gcatttcttc	atgagtcata	660
acttaaaagt	gatgagggt	ttacggtgtt	tatttggtat	ttcccgctcc	gccggcaagg	720
gtgtaagagg	agtgtgcga	taggcttngc	tcgtatcggg	atagtcttcc	cgatnatgcc	780
ctccctactt	tctcggcgag	ctatcgcccc	ccgaacgatg	agctgaccca	ctgcagcagc	840

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2802 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2802

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

accctgccta	aatcccggaa	aaacggcgcg	agaatttttt	cgctttggcc	gagaatttttt	60
tgcttcccga	acaaaaagca	aaaaaatccc	gcgccacgct	tcaggagcaa	caaagtcaaa	120
aattttggca	cgtaaacagg	cccaacgaga	tgatgcccg	gcttttttaa	tagcagtttg	180
tatagggcat	tgtattgcca	taagcatagc	tcttgagtca	ttcccataaa	gacgggcagt	240
taaaaccgat	cacctcccca	tatccactca	ttatttgtag	gtaaatgtct	ttttcagact	300
ttaaatactt	atattttatcc	cgaaaaatta	cccaagagag	attggtcgat	tgatgatccg	360
tcttaagtca	tacaatccaa	taatcattat	tgaatgaaaa	aaacaacccat	tatttctttg	420
attgtcttcg	gtgctttctt	tcagccgtgg	gccaaaccaa	ggacaattct	tcttacaac	480
ctttttcgaa	gaagatatgg	ccggaggagt	ttactctctc	ccgactcaaa	atcgtgcgcg	540
aaggacaatg	ccgagtggct	tcttacagcg	accgtctcca	caaaccagct	gcagatactc	600
actttatctt	cgatgagaac	aaccgctata	tcgctcggac	ataaaagcca	atggggtaag	660
aaaatccacg	gactccattt	actacgtgcc	aacgggcgaa	tatcgcatgt	ggatctttat	720
atctcgttca	gtggcgagag	cctgcactcg	acacccgatt	caagtacacc	tatgatgacg	780
agggaagatg	accgtgaggg	aagtattcat	gctggtaatg	gatccgaata	cactatctca	840
cgcttggaat	atcattatga	tgcacagggc	agactgaccc	acggatttct	tttgctttcg	900
gggcagaatc	ccaaaagaat	acgtatcact	aaatgaaaaa	ggtctgttgg	tcagcgaagt	960
gctgagcaat	gcaatgggga	aacctattca	gacaccggca	aaacggaata	cagctatgac	1020
gatgcagata	tatggtgaag	gccgagtact	tcgtcgtcca	gcaaggaaaag	gcattggcagt	1080
actcaaaaga	gaggaatata	cctatgagga	caatatctgc	atacaatttt	ggctattaac	1140
ggtaccgaca	caaaggtgta	caagcgagac	atcgaggcga	taagtccatc	tccgcaaatg	1200
tcattgacat	tccgtcaatg	ccggacagac	ctggcctaata	atgtacggat	tcaacgcaaa	1260
gcgactgaaa	gagattattc	ctcctacgaa	ggagatgtgg	ctactcctat	attcgactat	1320
atcatacgta	caaggctctt	acctcaatgg	caacaccttc	gacagaagct	cagtagcagt	1380
ctatctcaat	ccgtcaacgg	accggttagt	gattctggcc	acggcatcac	acatctgagc	1440
atgtacgact	tgagggttaa	gcttatccgt	attgtgcctt	gagcggcgat	aaggtggaaa	1500

tggtgtgctcg	atctttgaca	aagggacata	cctgcttaaa	gtgaatacgg	atcagggagc	1560
ctttgtgaaa	aagtcgtgat	tcgatgatgt	agttcggatc	gaatttcgaa	gaaaggactg	1620
tacgacaagg	cccccccttg	cgtacagctc	cttatttcat	tggtataaac	tgtctccttg	1680
tcgtcccccg	gcatggcaag	gagtttttgc	cgatatggga	gggagagcag	ttcatgtagc	1740
gtttgaagggt	gcgagagaag	taagcggatc	cgaaaagcct	gcctcaatgc	taatgtcggg	1800
gatgtttttg	ctccatcggc	aaggagcttg	caggccaatt	ttatcttgat	ctgctgtatg	1860
taccgatggt	ggagcaacct	acgacactcg	tgagctttct	gttgagttgg	gtggactcat	1920
gcacattttt	tcggccaagt	cttgagcggg	aaaatccgga	tttgtttgat	tccaccggac	1980
actgcatctt	tgagcagcaag	gagaaactga	tactgctgtc	atctatcggt	tgaggctcct	2040
cctccggctt	cggatccaca	tgagtttttg	catatagaac	ttcttgagca	actcacggtc	2100
tttcagagct	gctcgatccg	catcaaaagc	tcctccggag	agaatggctt	gcatagtaag	2160
agactacacc	gcttttgatt	ccttccaatc	tgctctgttc	ggtaccttgg	ccgtcaaagc	2220
gacaatggga	atgtgacaga	gcagaggcga	ttgctcatcc	ggattgtcat	ttctatccca	2280
tccattatcg	gcatcataat	atcgtaatga	taatgtcggg	aatatgctcg	gtagcgaggg	2340
ctataccctc	tttccgtttg	cggcggatag	cacattgtag	cgatcgcaaa	ggagtagttt	2400
gcgagcagggt	tgatctcctt	attgtcctcg	acgagcagta	tggtcggacg	tcgtcctcga	2460
agcgatgatt	cagagctgct	accatcggag	atgtcgggtg	tcatcgggcg	cgatgtggac	2520
aggcatgaca	atgtcatcgg	aggaggggtc	caaggaagaa	tctctgccga	agaggactgg	2580
ttttgtgtag	gaatactatg	gtgaaggcac	ttcctttccc	cggctggctt	tccactttga	2640
tcgtactcga	aggttttcga	ccagtatatt	ggtaaacgag	agtccgacgc	ctgatcatgc	2700
ttttcggtag	cggactgtcc	tcgatagaag	atgtcgaaga	tatggcctga	tcagttttat	2760
ctattcctat	gccattgtct	gcaacgcgta	tgacagattt	tt		2802

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

aacaactaat	gtctcacaaa	ttaatttaag	aacagagatg	aaaaaactgt	tttagcgact	60
ttgggactta	tgccatttgc	catgctctca	tgttcaagaa	caacaaggat	ttggagaaca	120
aaggggaggg	tactcttttg	gtaacgttgg	tagctcctat	aaagctccac	gcgaaacctc	180
tgccaagatt	gagaagcttt	tgccgcagct	tatcccgatc	aaaggataag	ctggacatac	240
acgtctctat	tatccgaaag	aaactggctc	agcagggtat	ttatatcgat	gctcggatga	300
ggctttggag	aaattggctc	gtctgggtta	taagaagatc	aatttacaga	gtcttcatgt	360
gattccccgg	cagagaatatg	atgagatgat	cgctttgttc	aataatttta	aggcagcaca	420
tagtgatatt	actgtg					436

(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 342 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...342

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

ancctctctt atattcactt ggccactta gtcctgagat aatattaact cagttcggcg	60
taagaaaacg ccaatgtatt cgttccctga ttagcggtta cacactaaga tcttgggagt	120
tataggttgt tccgttcagg caattgttag ggggcaatcc tgcttttgct tggatcgaac	180
caacattgaa attcggttgc ttttgaccga atgttgcagt ccgtacaggg agatgggcta	240
taccaagggc aagatggcgg tactccatag aggataacgg gctatcccgt acagtcttcg	300
agctacgctg tagagcccgg cgcggtgagc cctacagcgt ag	342

(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 460 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...460

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

ggtacccgcg aacggtagcc gtgtacacct gatccattac ggctgagaaa cttccagcag	60
gagactgttc ttgagcgtat attccacatt tccggacaga catcgaatat agtagtcgaa	120
ggagtatcca ttctcttctc gaacttgaat cgatctttcc cgaacgggca gccggtacct	180
gagccttatt catctttcgc cagccttgag gttgggcaat gaagcaagat aagtttcgat	240
caatgcttca tcttggcttc atccagatta ccgataaaga agaacataaa gtcgcggcat	300
cagcgaatcg ctcatgttag aaagccatta cctgatcgta attactttct ccacgtcagc	360
agctttcatg ggtttcatca tcggattatc gcgtacatgg tatgacggat agagtccata	420
agcgcagcca tcgggttggc tctgtatttt tcaagttatt	460

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2504 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2504

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

atgcttcgcc	atcccccttac	gtggaccata	cttgccacct	ttttggctga	ttgtcatatc	60
tcttttataa	gagatacaag	gagaaccaag	ctcgccgtct	gtggtgacac	ctgaggcccc	120
ggctattccg	gcttatgacc	gagctatgca	gccttggaat	cattacgtgc	aaaaaaactg	180
gtggaagccg	gtttgttaag	gaatacttta	cggaattgac	cgatttgctt	cggagctata	240
ttgccaaact	cgcgaaatag	atgccaggga	gatgaccagc	agcgagatat	tacagctctt	300
cagcggatcg	aacttcctga	aaaaggaagt	cgcctgctgc	atgaatattg	caaacggccg	360
acctggccaa	gtttgccaag	tataaaccga	taatggagag	gatgtggaag	ctattcgaga	420
tgctcgcgcc	tttctcgatg	agtgcataat	atccgggagt	catgacattt	gcatatcctg	480
aattgctttg	ctgctgatcc	tgctgccttt	gatagcgact	tggtatatcc	tgcaagcact	540
aagacttcgg	caacgatgac	catatcttca	ttgaagccct	ttgaaggagt	cgccgagggt	600
tgagggtcta	tctgcgccat	tcgttgccga	tattgaggct	ctttcggtcg	gttttctcat	660
tattgctttg	gctcgtccgc	agaatacaat	agctggcaga	aagattcgat	cgagggcata	720
gatattatgt	tggcctggat	gtgtcaggca	gtatgcaggc	catggacttc	aagccgaatc	780
gcttgaggca	gccaaagatg	tagcgatttc	ctttatcaac	aatcgctccg	acgcaatata	840
gggatgggta	cattcgcccg	agagagcttt	actcaatgtc	catgactacc	gaccataccg	900
tattgcttaa	tatggtacag	gacttgacga	tggtgttctg	gatgatggta	cagctatcgg	960
aatgggattg	gctacggccg	caatcgactg	aaggacagca	aagccaagag	ccgcgtgggt	1020
attctgctgc	ggacggatca	aacaacatgg	gcgacatcac	accccgaaatg	gcagccgaat	1080
tgccagaacg	ttcgggtattc	gtgtgtacac	agtcgggtga	ggcacacagg	agaagctcct	1140
ttccccattc	agacggaatt	cggagttcgg	attcagatgt	gcctgtcgat	atagacgaac	1200
ccacattgga	cgggaattgcc	gaggttcggg	tggaaaatac	ttcagggctg	tcgataatga	1260
aacgctgaat	gaaactacaa	ggaaatcgac	aaattggaga	agacgagact	tatgaccaag	1320
agctcaaggc	ttatgaggaa	aaatactttg	tctatgccct	tattgctttt	ctttgttgct	1380
gacagagttt	ttgcttcgca	atacacttct	tcgttccaac	cgtaaaaaga	ttcccatggt	1440
cagattttat	tcacccgaat	acttatactt	ctgctgctgc	tcccattgct	tgtgggggta	1500
ggcgtctatg	cttatcgcaa	agacggggcg	aagaaagacc	ggtttgcccg	aacttccgct	1560
gctaaggcct	caaaccggaa	gcaagtacca	aacgtcggat	ctggcgcaac	ggatttctct	1620
tcttgccatc	gttttcttga	tcgggatgct	tgcccgctcg	caaatagtat	tcgtgtggat	1680
gtgcctaaag	aggagaaagg	tatcgaggct	atgattgttt	ggatatttcc	aactccatgc	1740
tctgtgaaga	tgtcaagccc	aatcctttgag	ttttgccaaag	caagtgttgg	gaaagctctt	1800
tgacggcttg	cagacgacaa	ggttggattg	gttgatttcg	caggtaatgc	ttatacgcaa	1860
atccgattac	tacggatttg	tctgcagcca	aacagtttct	tgcagatata	atcccaatat	1920
ggttacagcc	caaggaaacg	ctatcgagac	ggctatcgaa	ttgcctccaa	atctttttcc	1980
gataataagg	aaatcggtaa	gactatcatg	tcctgacgga	tggagaaaat	catgaaggaa	2040
atgccatcga	agcggcacgc	aagcccatag	agcaggcata	cgggtcaatg	ttattgggtct	2100
cggaaacacct	tgggggcacc	tatacctatt	gaagaaggat	acctcaaaga	tgaaacggca	2160
atcctgtcgt	taccaaattc	gacgaaaaga	tgtgccgtga	cattgttcag	caggagaggg	2220
tactttcttt	tccggacaga	gtgcttctgc	gctgttcggg	ctatagagag	ccagctggac	2280
aaactcccca	aagccgtact	ttctcttcgt	cttcttccgg	ctatcgcgaa	gtgtacggat	2340
ggttcggact	tgggctttga	tatgtttatt	gttggaattc	ctgattcagg	agcggaaagag	2400
tggttcttca	gtaggatcaa	attgtttgac	agatgagaaa	ttcatggcga	atgccacctt	2460
cataaccttc	ttcatgcttc	ttgcttcaac	gagccgggtc	cgag		2504

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4334 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4334

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

cccggaaaaa	aatgtcattg	gaggagattg	cccgcagtat	cgaacattac	ccacacgctt	60
tctcatttgg	acaggtggag	aaccgactct	gcaacttaag	aagaagctac	ggcttatttt	120
cacaggcttg	gttactttca	agctataaga	ccaacggaac	tcgccccgta	cccaaaggta	180
tagactatat	ttcctgagtc	ccaagaccgg	agccatagga	aaactgaaag	aaaacttccc	240
tgatgagtgg	gggagtttcg	cttcccgtta	ggatccgata	ctcctctacc	tccacgatcg	300
atgaattgcc	cactgctcag	cattatcttg	tcagccccat	cttgcgggag	acgatgccat	360
ggagccccgat	ccttctgcc	tactcgcgtg	cgcgagttcg	tcaaggcttt	tctgcttgg	420
cgtctgagca	tacagatgca	caactgattc	atatcccata	gcctatccct	tttcttctta	480
atatgtacag	ggacatcata	aaatccatta	tccttttctt	atcctgttgg	tatgccttgt	540
tttgcctgct	gcaagagcgt	gaagttgaaa	gatgcggaga	aggcacatat	cgccaagagt	600
ataccaaggc	tgccgatatg	tacaatacat	tatacagcgt	acccgacgaa	agcaggtgga	660
gatgaaagct	tatacggctt	tccgatcggg	gaaaactatc	gtgccgccgg	cagacaagcc	720
aaagctttgc	gtggcatctg	aatgccagac	gctacgggta	tccggattct	gtggtactgc	780
tccgttggca	cagacttatc	agcaaggagg	taactataag	gaagccgagg	taccttccgt	840
ggatatctgg	aagcttatcc	gaaaagttat	tttgacgcta	tcgtttggag	gggtgtctct	900
ttgcccgcga	gcaaaaggaa	tatcctacac	gtaccggata	cggcgagctg	ccgagtggaa	960
ttcggcacgg	ggcgacttcg	cccggcctat	gcaccgatg	cttcggctct	ctatttcaca	1020
tcgagcagag	caaagacgac	ggtttggata	atagcagcat	aacgggactg	aaaccaaga	1080
catttatatc	atcaaacgag	atgcacaagg	acgatgggga	cgtcccgtag	cgtgtccgga	1140
ggaatcaaca	ctccatggga	tgaaggcgtg	ccaacgtcac	gcccgatggg	agtaccatat	1200
attatacgtt	ggcgcagcaa	ggagcgatta	cgaccgtacg	gtacagatct	attccgccgc	1260
tcggagcgga	gaagcggttg	gagcaacggg	tcgctcgtgg	acattatgcg	cgattcgcct	1320
cgttggtctg	tcacccctct	atgtcggcat	ccggcgatta	cctgtatttc	gtagcaatat	1380
aggcggtagc	tatggcggca	aggatattta	tcgtgtcaag	ggtcggatcg	ttcttatggt	1440
tcaccggaga	atttggggcc	tgatatcaat	cgcgggggga	cgaaatgttt	cccttcatag	1500
atggggatag	tacccttttt	tcgcttcgga	cggacacgcc	ggtctgggag	gactggatat	1560
tttcaaagca	cgttggaact	taccggccaa	tggcatgtag	tcaatatggg	acaaccgtca	1620
attcctctgc	cgatgatttc	ggcttggctg	tggagcctaa	aggcaaaaca	aagaagaagc	1680
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ccgcacctct	tccatttcga	actgcggcta	tctacaccga	gattcaaggt	tatgtgatgg	1800
acagagaaga	aaaccatag	ccggagccac	tgtcaggatc	gtaggcgaa	gcggccccgt	1860
agacagggat	tcgtgactac	tcgtgacgat	ggctcctata	agatgagcgt	gagggcgata	1920
ctcgctatgt	aatgcttgcc	ggagcatcgg	gttatttgaa	cagtacgtag	aactcaagac	1980
cgataccgcc	aagcagagtg	agacctactt	gtggactttt	tccttgcatc	gcgtgagaaa	2040
gccgagggct	tgcaaaattt	ttctatgatt	tcgataaagc	tactcttcgc	cccgaagca	2100
tgaagagttg	gacgaactga	ttcgtatcct	cacggacaat	ccggatatte	ggatcgattg	2160
ggttcgcatg	ccgacaggaa	aggccccgat	gcttacaacc	tcggatatct	gaccgcagag	2220
ccaaatccgt	ggtggattac	ctcacgagtc	gtggatagcg	gccgacaggc	ttacgtggaa	2280
aggctacggg	aagtctgtcc	ccagacgggtg	acagccaaaa	ttgccgaacg	gcacgatttc	2340
ctgaaggaag	gcatgtgctc	accgaggaat	tcgtagcacc	tttgaccgag	gagcagcagt	2400
cgtctgcgac	caactgaacc	gtcgtaccga	gttccgtgtg	atcgaagaag	gttgcgttaa	2460
tcgctcgtgg	aatgaaaagt	agagcgggtc	aagccgtaca	agtgtgcttt	gataagactt	2520
aattttttcag	tacgtcgaat	ctgatattgt	ttcagaaaaa	tctactagtg	gtttcagaaa	2580
aatctacttg	tggaaattac	gtctctttta	tgagtgcctc	tttgagacac	caaacgacat	2640
gaccggaaca	gcacttgtgc	ttctccaacc	atcgccttgc	tccccgtgta	tgcacttgtg	2700
cgccacgctg	taccgtctga	ttcacattgc	gtccatacga	gccgtaccac	ctccggctcc	2760
aataatccat	cgggtacctt	tcggcacaca	gtatagccag	caataaccgat	taggagaaac	2820
tcgctcgaat	gaaacgcgaa	aacaatttaa	tcgctcgccc	ccgggggcaa	cctgtcaggg	2880
cgatcgcgtt	taaaattttt	agtctctttc	ctctatgatt	tgaatctctg	acatatgaat	2940
cgcacttggt	tgataatcgg	gtgtagcaat	catgagcttt	agatgcacgt	agtggctgaa	3000
atgcgattgc	cctgatcaaa	aatagtacta	cgaaagtttg	taccttagcg	cgcatgaaa	3060
agaccaatct	gtttttatct	ctgctgggat	ctttatcacc	ggtagtttta	tgactgcctg	3120
tgacagaaag	tccaagcgaa	caaactcacc	gaagaagatc	ggagccgcaa	tgagtatgta	3180
cagtcatgga	tgtgcttagc	aatattatcg	gtaacgtcag	gctgtatttc	gtcgtaccat	3240
aagtatcaaa	catatgactc	ggcgtggtat	agatgcgatg	ttggcgggct	tgacccttat	3300
accgaataca	ttccttacga	ggaaatggat	gatgactacg	ggagagtatg		3360
ccggagtcgg	agctatcata	tgcagcgccc	gtgattatcc	agagacctat		3420
ggaaggatatg	ccgcagacga	agcaggattg	atagcaggcg	accgcctcct	gactatcgag	3480
ggaaagactt	ccgcaaatcc	accacaccga	aagtaagcca	agcactgaag	ggatagccgg	3540
tactgttgca	aaggtgacag	taatgcgcta	tggcgaaacca	aacctcgtac	tttttccgtg	3600
aaacgtcaaa	aagtgattat	gaattcgtca	cttacagcgg	aatgctcgat	ggctcgatag	3660

gatatatccg	cttgacaact	ttacggacaa	aagtgcagaa	gaggtgcgca	cggccttggt	3720
ggatttcgtg	acaaacaagg	agcgaaaggt	ctcatttttg	atttaagagg	caaggtggcg	3780
gactgatgca	ggctgctatc	gagatagtca	atctgttcgt	cctaagggca	aagaggtggt	3840
aacgacaaa	ggtcgcattg	cagagtcggc	gccgtatttc	gcacattgac	tgaaccgatc	3900
gacacgaaac	tcccgatagt	gtcctgatcg	atggacaatc	ggcatcttcc	tccgagattg	3960
tagccggaga	ctgcaggata	tggacagggc	tgtactgatg	ggacaaaaga	gctatggcaa	4020
gggcttgtag	aaacgactcg	tcagctacca	tacaacggcg	tgatcaattg	actacggcca	4080
agtactacat	cccaagcggg	cgttgatttc	agcgttggac	tacagccgca	ccaatcggac	4140
aggtatggca	acggccattc	ctgacgtctg	cacaaaatct	tttactactg	tgccggaaga	4200
cgtgtagaag	atgcggagga	atcctgcctg	acatcgaggt	caaacaagat	acagctgcga	4260
catactttat	tatatggcca	tcaataatga	cgttttcgat	ttcgtcacag	gtatgtgctc	4320
aagcataaaa	cgat					4334

(2) INFORMATION FOR SEQ ID NO:889

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2426 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

cgcgaggccg	agatatgggc	tatcaccaaa	aaagcatgcg	aataacgatg	cacgtacctc	60
ttttcaagtt	ggttccgaac	cgctctctct	ggatctgctc	gcgaatatct	ggatagtcgc	120
ttcaagctgg	aactctcagc	ccgatgcgta	agacgtatcg	agcactgccg	ccactatctg	180
gacgagaaag	tgaagcgctg	gacaaaacca	tatacggcgt	gaccaccggc	ttcggctctc	240
tctgcacagg	acaattacac	cggatcagct	taccgnctta	caggagaacc	tcgtaagagt	300
catgcctgta	gctgcggcac	gcccgttcat	gaggacatcg	tgccctgatg	cttctgctca	360
aagctcatgc	ctccagttg	ggacacagtg	gctacagcta	tgcaccgtgc	agcgtatcct	420
ggacatgctc	aataacgacg	tctccccatc	gtttacgatc	gcggttcgct	cggcgcatcg	480
ggcgacctcg	ccctctggcc	aatctcttcc	tgcgcgttat	aggtgaggga	gaagtcatga	540
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ctcaagagca	aagaaggctt	ggctctgctc	aatggtagca	gttcatgagc	agtcattggcg	660
tctacgccct	cctcaaggca	caccgtttgt	agaggtagca	gactgtatcg	gtgcactctc	720
gctcgaagct	ttcgaggctt	ggatgcccc	tttaccgaca	acctccacat	catacgtcct	780
cacccggaca	gttggccgta	gctcgtcacc	tgaagggaag	tcttaaagg	agcagcagat	840
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ggagccagcc	gcgatgccat	tgcctacgtt	aagaggtagt	cattcgagag	atcaactccg	960
tgaccgacaa	tcccacggtc	tccccgatga	agatcttgct	gtatcgggtg	gtaacttcca	1020
cggccaaccc	ttgccatcgt	atatgatttt	ctggctatag	ccttggctga	actgggcata	1080
tcagcgaacg	tcgcacggct	cagctcatac	tcggtctgcg	caatctgctg	agttcctcgt	1140
agccaatccc	ggctctgaaca	gcggattcat	gatacccagt	atgcagccgc	agctatggtg	1200
agcaagaaca	agatgtactg	tttctcgcag	ccagcgatag	tatcgtcagc	agcaacgggc	1260
aggaagacca	cgttctatgg	gagctaacgc	agcaacgaag	ctgcttccga	tcatagaaaa	1320
cctgagatga	tcttcgccat	cgaactcctc	gatgcggccc	aagccttcga	atccgcctgc	1380
cgaccaagac	gtctccgttc	ttggagaaga	tgctcggcga	gtgcgcaagg	tagctcccaa	1440
ggtggaggac	gatgtagtca	tgtacaaaca	atacaggcag	ccacggagtt	cgttcgcgaa	1500
tatgctttct	aacgaacccg	cttctccgcg	tgattcctta	cgctgaggag	agggagatac	1560
aggcttttcca	atgcaagaaa	gagagagtgt	gccacgaagt	attttcgttt	ggcacacctc	1620
ttctcgtata	ggctctctcc	gacgcaataa	gggtaatgcc	catgccgttt	acaagacatg	1680
agatcagact	aaacaatcga	aaacaaacaa	tgacaaagaa	acatacccca	aagctactgt	1740
cctcgacata	tcggcatcag	tagatatccc	gacggcgga	tcatcagcaa	acaagtactt	1800
aagaacgaag	tagcaacatt	actctcttct	ccttcgacca	agggcaggga	ttgagcgaac	1860

accagcacct	ttcgatgcct	tcgtacagat	attggaaggg	gaagcggaaa	tagaatcgga	1920
ggccaacctc	ttctcctcaa	agccggccgg	tccgtcatca	gccggccaac	gtcagccatg	1980
cactccatgc	tacgaaacgc	ttcaagatgt	cctcaccatg	atccgcggct	gaaaacgggc	2040
agacatatac	tgcgccatct	gtggacgtaa	agcctccaac	aaataaaaca	aggagaggag	2100
atctgtaatg	ccgacagtct	cctctccttt	ctttttcttc	ctaacctctt	gtctacttgc	2160
gactgcctgc	ctcttgcgca	tcatgagttt	gtccacgatc	agcgaatagc	accgtcgcct	2220
gtgacattac	aagccgtacc	gaagttgtcc	atggatatata	caatgctatc	atgagtgcct	2280
gtaaggactc	atcgaaaccg	agctactctg	caaaacacct	aaagccgcca	tgatggctcc	2340
acccggcact	ccggagntgc	caccatcgta	ataccgagca	taaagataaa	tccggtaaac	2400
aacctgcata	ataaggcata	ccctgc				2426

(2) INFORMATION FOR SEQ ID NO:890

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

tacccccctga	ttgatcagct	ccgttatatc	gcgagatatt	ttctccacag	ttcgatgtcc	60
tgtgagggtca	ccgtaactgt	ctggctgagc	agatacccg	aaagggtcctg	acgtttttgtt	120
cctgcccagg	atcgtaatat	tagttgtttc	tttagagatg	gctacgcttg	agaagatatata	180
agacgaatcg	ggcagcgctt	gtttttcaaa	tagtctgcta	ccaatatctg	tttttccttc	240
aaagcttgta	ggccgattcg	agatccatca	tctggagctg	gtacgaagca	gtccaacgat	300
cagatcggat	ttgaaattac	gctcggccat	accggtcaca	gtcccgaagg	ctgagagcgg	360
cgtagctgag	cgacactgcg	gccaaagagca	taaggcccaa	tacgaaagcc	aaaccggcga	420
cgatcgcaat	ccaaagtttt	tttttttcat	cacaaagcac	tgtattgatt	ctatatattact	480
acttcttatc	ccatagaata	caggataaag	aaagtaatgc	gtttcccacc	gacgagtccg	540
atattgtatt	cgcgtccat	accgacggca	aagccgaatc	gctcggagct	ttcagctcaa	600
gcatccacc	gtactgaggg	ccgaatccat	gcatcggaca	gccatattga	gtcctgagcg	660
cgtactgctg	tagagaggat	agctgcaaat	ccattgacaa	agacattgtc	catcacttcg	720
tatcgagcac	ttccttaagc	gagaacgttc	tattatcgaa	agcattccac	tgtacctgtc	780
gatatcgata	ccggtggtaa	aactcaatct	ctcgggtggc	tgccaacgca	gttgccattg	840
acagccgtca	taggtataaa	gccgaaattc	tgctgccaac	cgcttggaca	tgtgccgtaa	900
gattttgact	cagcaagaag	tcggcaccag	cttccatccg	aagtccttgc	gcacaccggt	960
caataaatca	tggccaagac	gatattgccc	gatgtataaa	aatgcaccc	atcgggtcgg	1020
cgccatgaag	gacaccggca	gcgtggcgag	tttgcaagag	gggagaaaacg	aaatcccgcg	1080
ctctgccgcg	aagttgagtt	cctcattcaa	ttgcaaagat	gagcgatagg	cttcaatcca	1140
ttgagcaaa	catcggaag	atgtttgtct	ctaaactttt	cagtgtacgg	gtattctgaa	1200
aagaagcggg	caggacgggg	tgatcatgga	gagaagaggg	gtctgctcca	ccatgctgct	1260
attcggcact	ggctaaccgt	agagagacta	tcctttttct	cttgcgccat	cgcagagaaa	1320
agactaccac	gaatatcaac	ccgaacagga	cggttctcgg	acgacggata	agcaccggat	1380
tatcatgagt	cttgcataat	ttgatatacc	gcaaagataa	atattatagg	tacaacagac	1440
ataccgtaca	ggccctaaag	gttatcccca	tctacaagac	gaagcagaca	ggaggaggaa	1500
aagaaaggct	aagccgacaa	agagaaggat	acacatccta	tactcagttg	attttcacac	1560
cgaaatttgc	atttacagcc	caaaaattct	gtttgattgg	tagccatata	ctggaggttg	1620
accttttccg	aaggcactta	gaatcagctc	tgtggcaaaa	gagttcatga	aaatcccgt	1680
caacagtttc	tctttgtaac	tctctgtccc	ctctgttcta	ataccggtct	atgtctatat	1740
ttcctgaaat	atccgggcct	gtgatcggtc	ataagagctc	attcagacaa	agcaattcct	1800
tgagtttttc	cttttccttc	gcttcagtct	atgggcaaa	ctacttggtg	gcgaagagtg	1860
atcgccacaa	aaaaccgtat	cagggcaaaa	acagaagcgc	gagctgctga	tccattcgaa	1920
gcttttatca	agccaagccc	ggcgttgccc	ttgctattgg	aaatacgtac	tacgagatga	1980

agcggagacg	atgacaacgg	aaaaatcaac	cgccgaaaaa	gtgtagcagg	catcatctca	2040
cagccgatcg	gtttacgtcc	ggaatTTTTg	tgTTTTgcagt	ttggaaaaac	gtgggtgcgta	2100
aacttttctc	tttggcgcg	gaagtaaaaa	aatctcgaac	caaaacgaaa	aaattcggca	2160
ccaccttctt	cagaaaagac	gcgccgcaat	cagaggattt	tcggccgtat	cgggtgggata	2220
gtgggttgatg	gatattgact	cgatagtaga	gctgcctcca	acggcagccc	taagaaaaac	2280
tcgataaaaa	aagcactatt	ctcttgccgg	acatcgaaga	gatcgtcaag	gacgaaccga	2340
atgaaaacca	atagatctca	tcgccctctt	cgacgaaata	accgatcggt	ccatccgcca	2400
gagagtcata	tccgagtagg	cactcgatcc	tgaattgaca	acaacgggag	ggaccagcgg	2460
ccggagacat	gatcgaagag	atagacagct	ccatcgcgag	cccatccggg	ccgagaggca	2520
gggagtgcag	cacttgatcc	cttcggttct	tttcaactga	agcatagctc	cattacagcc	2580
gggggtcatgg	atgccctgaa	ctgcttggtt	ctcttccaag	taaggccatc	gtcggaggag	2640
agagcgagaa	acgctgtcgg	ctctcctgcc	gtccctgatt	gcgtatgctc	atcagaccct	2700
gccatcgggc	atcaatgaaa	gctttgcctc	atcgccacgg	cggttgcaca	gtcggaaaagc	2760
tgccatgtat	cgccctcatc	gtcgctatag	aggcatagtt	gttcaggacg	tactcctgcc	2820
ctgatttcgg	gatggcagcc	acaacgtgat	acgaccggat	ggcagcacia	gcccttgctc	2880
cgaagcacia	aggaggccaa	ccagcgactg	cgtcccggat	cggcacaatc	cttgccgaag	2940
tgaaatgggt	tatatcccg	ggagcgaccc	aagtcagtc	ttcgtcccgc	tttccgatat	3000
ataagtgcgc	tgaggacgat	cgggggtaga	ctgccacagc	ctactccacc	gacaaagatc	3060
atcaggagct	ttcctgcttg	ggtttgccca	gggctacatc	gccaaagcca	tgattgcgcc	3120
cctctccctg	tacgatattc	tgggatcgct	ccacgatttc	cctccgtccg	tactgcgccg	3180
catgatatat	ctatatcctc	cggcagatcc	gtctgattat	attttcgtct	gtcgccatcg	3240
ctatgagtgt	tccattagcc	gttttcaaaa	tggccgggat	acgtagtctc	gcgatccgcc	3300
atcaccgggt	acaaagaggg	cctcataccc	ccatacagac	gacgggaggc	aggcgacagc	3360
tctttcaacg	gcaaaggcg	gcatcgacag	ccacctcttc	cacacgggca	gtcagcgtat	3420
cggatcggga	aaagaagcaa	caggccctat	atccgcagcc	aaataaaaaga	agcggcgctc	3480
gctaccgaat	ccgcagaaa	ggctgtggta	cgatcttctt	ttgagatcgg	aagctatc	3538

(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 819 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...819

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

ggagagcgag	cgaaagaact	ttctttacga	aagagacacg	gcccgttcga	actggcgaaa	60
cttcagggcg	cggtcgagtt	tcatgagaag	aagatcgcg	agccgggaaa	gaccggacgg	120
ttttcgagga	gcgggtaaag	aaaaacgaga	cgggacatac	caaaaccgca	tacggatcga	180
tggagtggaa	gacggcggga	tatcaaaaaca	atcgctcgca	ggctgaaaga	gtacgaagag	240
aaagccggac	aggcggagag	cacatgccga	tcggcggaatt	atacggcttt	caatatccgt	300
caagagcgaa	gcctccatga	aagagagttt	cgacttcgtg	gataccgggt	ctttgtgaaa	360
ggttgtggca	gcattctatta	tacttacaac	aaggacattt	ggctgaagac	cccaaactgg	420
cctgcatgaa	ctttctgaat	gcttgagaaa	gattcccaga	gtcgtcgaga	gtcatcggaa	480
agaactggct	cgacacaagc	caagataccg	acgttcgaaa	cgatggtttc	tgccgtatga	540
agaaagagga	ggaattgcag	gagctgaaga	gacaggccgc	ggagctggtc	gcaagatcgc	600
cctttcgctc	aaaaaagagg	acaacagcga	agtgaacggg	aagaaacggg	cgctcccgat	660
gcgacaatcg	catcgatgcg	cccttagggg	ggagctaaaa	agggaacggg	cttccgagcg	720
gaatcatacc	gattgaaaga	aatacgggag	gatgaaaaaa	tcaaaccctg	cataaagcct	780
ggaagtgggt	agagatacag	agatatacct	gatactttc			819

(2) INFORMATION FOR SEQ ID NO:892

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 588 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...588
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

atgcgattgg	tcttttcgca	tagcttctca	aaaaccttgg	ctgaccgtac	tgcgatccaa	60
tatggaagtg	caatcctctc	cataccagcg	atccggacgt	aaaaggtggg	gcatcagtgc	120
aagtgcattc	tcggggcaaaa	gaccgaattg	ttttctgcc	atcctgtcgt	tatatggctg	180
tgcgatatgc	catcgactca	ggattgagcc	gaagcaatat	cggagcgatg	tcgttcttcg	240
atccgccaat	cgttcgatgt	tcagcaattc	gggcacactc	tctactacga	aagccctatc	300
cgcgccctcta	aagaaagcaa	aatctcttca	tcgcttttgc	ctatccggca	aaaaaaatat	360
cgggaagcggg	aaagcctgcc	tcgatagccg	ctcgatctcc	cctccactca	cacagtccgc	420
cccgaagccg	gcagctgcaa	cgtctgcaaa	atacgaggat	gattgttcgc	cttgagcgca	480
tagtgaatgg	aacatcgtgc	cttcctgcac	tccgggcgag	cgcggaagc	gtcctctcca	540
gagtgtcaga	tcataaaaat	agaaaggtgt	tttcattgaa	aaaataag		588

(2) INFORMATION FOR SEQ ID NO:893

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 731 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...731
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

cccgccgtat	ttgcctcgaa	cgggatgagg	agacagcgta	gactactggc	aagaagtatg	60
caaaaaaaga	aaataagagc	agagtatgga	acagaaaaga	ttttcatcac	ctataatcag	120
gcctaccacg	atattatcat	tcgattgtca	gccgatacaa	cctcagagga	tatacctatt	180
gggagactgt	ccgcgggtgc	gtagcgatac	gggtgagcct	cacttgggca	ctcatgcatg	240
gcctagctca	atggcgccct	catggctcgt	tgctcttccg	agaaaatgaa	aacctaatgg	300
acgctctgcg	tatccttgac	gccgctactc	cggatcaggg	actcgcgcct	ttgtttggaa	360
tatcgagcaa	acaatctgat	cggagactct	cggctccatc	ttcttagtat	atgggggctg	420
catccaataa	gttttgggtg	cgctcttttt	tattgtctcg	ccgtgtcccc	ccctcatctc	480
gcattcggct	atttacgctc	tggaattttc	tcgtttactg	tcccacaaaa	cgtgggtgtgg	540
aacttttctc	ttttgggtctg	ggaagcaaaa	aattctcgcg	ccacaacgaa	aagttctcgc	600
gccacttttt	tcagagatat	tgctgtccgg	taaaattctt	cagctactca	ccattcgtaa	660

gcatttgcaa gccattacc gaccgaggcg ttggctgtga agaaagtctg gcgtatggct
gatatagcgca c

720
731

(2) INFORMATION FOR SEQ ID NO:894

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2353 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2353

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

gagcccaatc	aattcacctc	ggtacccggc	gagactattc	gcgatttggg	ctggaaggac	60
aactcagcaa	aaaaggaacg	cccacgatgg	gaggtctgtc	attatcatct	ccattctgat	120
ccccactcta	ttgttggccc	gtcttgaaat	gtatatatcc	tgctcatgat	cgccaccact	180
gtcttgctcg	gctcataggg	tttttggtatg	actacatcaa	ggttttccgt	aagaagaaag	240
agggtgcac	ggacgttaca	aaataatcgg	acaggttgga	cttggttca	tcatggtata	300
gtactgtata	tgaatcctgc	ggtcgtgatc	aaagaaaata	gcgagtgtct	cggtatggac	360
aggtcgaacg	tgtacacttc	aacaaacagg	agtaaaatcg	actaagacaa	cgatcccctt	420
tgtcaagaac	aataatttcg	atacgccgat	atacttcgc	tcgaaggcaa	aacaaaagtg	480
ctattcggtc	gattctcttc	gtctgcgtag	ctgtagtggg	agtcaccttt	atatccaacg	540
tgccaatctg	actgatgggt	tggatggttt	agcgacgggg	tcttctgcat	tatcggaagt	600
gtactggcta	tttttgcccta	tgtctcctcc	catatcggat	ggcctcatat	ctgaatatca	660
tgtttattcc	cggagcagag	gagctgccat	ttttgctttt	gctttcggtg	gtgccacgat	720
cggttttctg	tggtaaatgc	ttatccggca	caggctctta	tgggagatac	aggaagtctc	780
acttgggagg	aatcatcgct	gttttcgctc	tgatcattcg	caaagaaatg	ctatgcccat	840
cctctgcttc	gtatttatca	tagagggtct	ttccgtgatg	atcaggctct	ctatttcaag	900
ctgacgaagc	ggaggacagg	tgaaggctcg	ccattttcaa	aatgactccc	ctccaccacc	960
atttccaaaa	gcccggtaat	ccggcataga	tgcattggcta	cagaagccta	tgcaggctat	1020
tcccgaatca	aaatcactgt	tcgcttttgg	ctcgtaggga	ttatcatggc	tgcaattaaa	1080
tagcaacact	caagatgcga	taacgaataa	ataacgatct	gggaagagga	ccgattgaaa	1140
tatgatatag	ttgttctcgg	agcaggagaa	agcggatagg	agcagctctt	ttggctcaag	1200
ccaaaggtct	gcatgtattt	gtatcgacta	cggaaagata	gccccgaaat	acaaggaaga	1260
acttaaccga	tatgcatacc	gtacgaagaa	ggtaggcaca	cagaggcgat	aatcctcgaa	1320
gcaaagaaat	tatcaaaagc	ccgggtattc	ccgacactgc	tcctattatt	cgcaggctgt	1380
tgccaaagag	ataggtatcg	tttcggaaat	agagttcgcc	gacgttacac	cgatgcattt	1440
atggtgtgca	tcacgggtag	taatggcaag	caacaacaac	catgtggttg	tatcacacgc	1500
tctgtaaggc	cggtttggag	taggtttggc	aggcaatgtc	ggtttttagt	tggccagaca	1560
ggctcgcttcg	atcctcatcc	ttattatgta	atagagttga	gcagttttca	actggacaca	1620
tgtacgactt	cagggtctaat	gtggccattc	tgctcaatat	tacaccgatc	atttagatcg	1680
atacgatcac	cgattcggagc	tttatgcaga	agcgaaatga	gaatcactcg	gaatcagcaa	1740
cccaggagatt	gcttcatcta	ctggaggatg	atccttttat	cagccgatgg	gtagccgaac	1800
atcctcctgt	agccgtcttc	taccgttcgc	aatggaagct	cgaacggata	atacaactgc	1860
ttgatcaatg	aaaagaacga	attggttgtc	atgaatctta	attcaccttt	tttatggatg	1920
aggaactttt	agctctgtcc	ggcatgcaca	acaggcaca	gctatggcaa	ctgccattgc	1980
tgccaaagct	atggatatta	agaatgaggt	attcgagaag	ccttgcagga	tttcaagaat	2040
gtaccgcac	gactggaaag	attgctcgcg	ttaaagggtgt	cgattatata	aatgactcca	2100
aagctacaac	gtaaatctta	cctggtatgc	tctagagagc	atgaaaacta	gagtaaactc	2160
attctcgggg	ggacagacaa	aggcaatgac	tatacagata	tagagatctg	gtattgtcta	2220
aagtcgatgg	actgatcttt	ttgggcatag	ataagagaaa	ctccacaaat	tcttcgatgg	2280
caagatctcg	cggattgcag	atgatgctcg	atgcatgaag	ctgtttcttt	agcatacaag	2340
atggcatcca	ggg					2353

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3457 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3457

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

gttcttgccg	aacgtttgaa	tataacagtt	gcctacctga	atgaagcgaa	aatgctgttt	60
ggggaacgag	tgtaagtcgg	aatattcagg	atgaaatctc	ttgcaagcta	agcgacaatt	120
agtctataca	acaacctctg	taaaagaata	gcacaagggt	tgggatttga	cgattactcc	180
tacttcacac	gactattacc	aagggtgcag	gagtttctcc	aacgcttttc	agaaagaatt	240
accacaatag	tgctattatc	accgttgttt	gtctattgtg	acgacctgta	tcccctgtac	300
ctttgcagca	gaatttattt	acttaagaag	atacagatta	taagatgaac	aacgctgtga	360
atattttgca	agaaggaagt	atgatgaaat	cctgacaaag	ttggggatac	ctattgtcat	420
cgcaatgctg	attatggcaa	ttacaatgtg	gtagatactt	tctgggttgc	acgtttggga	480
actcttctcg	cgctgccgta	tcagttgttt	tccctttatc	gttggtgttt	cttgggatag	540
gctgatgttt	ggtgttgggg	gcgagtgta	tatatctcgc	ttattggggc	gaagcaaatt	600
gtcaaggctg	gtcaggtagc	ttccgtctca	gtgatcactc	tgtgatttta	gctgctctca	660
ttgcccttgt	atgcaatgcg	tttctacaga	aattctgctt	ttcatggggg	caaacgagga	720
gatgatgagc	ttagcgaagc	atatggcaga	ctgttcatcg	ttagtgtgtg	cataggaacg	780
ttgatgtgtc	gatgtccaat	attatagttt	ctcagggggc	ttcaaaacgt	ctgatcggca	840
atgataatag	gttctgttat	aaatgtcgca	ttggatcctc	tattatctat	gctttcggct	900
ggggtgtgaa	aggtgctgcg	tgggcaacca	tctttcaaga	atcattacaa	caatcattta	960
cacctgcttc	tttatgaaag	agaggtgaaa	gtttcgtttg	cttgtgtcgt	cccaacgata	1020
agaatgtact	ggacatcata	aagataggta	tttcaatgct	ctgtttgcaa	ctcctccaac	1080
actttcgatt	agtttattgc	agagagctgc	cgtaaaatat	ggggcagggc	tgtagcagca	1140
gtaggcatcg	ttctgaaaat	tgtaacattg	ggaacgcagt	ggttttcgga	tttgtaagg	1200
gactccaacc	gatggctggc	tataatacgg	ggcagaaaat	ttccaaagg	taaaagaggc	1260
agtacgttgt	tcctgatact	gacaacctca	ttttgtgtac	tttgagcac	tttcatactc	1320
gttttgcttc	tcctgttate	agttgtttcg	gcaaagacga	aacaatgcaa	gaattgcacg	1380
aattgccctt	agagccaata	cgctaattgt	tttcactttc	gcttccagtt	tgtgtattcc	1440
acactatata	tggcaatcgg	aagagcaaga	agagcctttt	gctcaatatt	ggacgacagg	1500
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aaagatatga	ttatgctaag	acttactcaa	actgagactt	taagacaata	atctctttat	1740
gctctacaaa	aggacagata	caaaagcgtc	agacaacttt	attctgaaga	ttattgccct	1800
atgtgatgca	gaagagattt	agtctcattg	tttcggaccc	tccgttatac	acgcttttgc	1860
ctcaaccttt	gcaaagggga	gattcaatgg	acggagaggg	gaaaaaatgt	acagaactgc	1920
tctttgtcat	tgacacggag	cttgaattac	tgaaaatgcy	atgcagggac	ttcttctgcy	1980
attgccagtc	agacctgcta	agaaactctt	tggacaggca	aagcaacaga	ttagttagaac	2040
tcctttatgc	tctcgacatt	gcaacagtat	caacaacgga	gaaatagggtg	tagaggaact	2100
ggcagacctc	tctcgagat	cttcggagtg	gcgataaaga	acagctacaa	cgtctaattga	2160
acatgaaacg	tcgcaaagat	gatagcgcga	cctattttct	tgatgactcc	gtgagaaact	2220
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tggttaatca	ggcttctctc	aataaaggga	agtctgattt	ttacatccat	gcaaggagca	2340
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tcgatttccc	ctccaataat	agccaattcg	agtgtcagtt	tctccaactt	gtgagcatcg	2460
caaaggcttt	cttctccgta	aaattgcttt	tcaaagcgat	acagtttggt	tataattcac	2520
cccgcactg	cgaaattgtc	cgtacaaatt	gtcagttttt	ggtagtaatc	gagcaacgaa	2580
cgatccactt	ttatcaccga	aaggtctcat	taaagaccct	tgctttagat	aaagcggctc	2640

tattttaagc	cccgattgct	cgaatagcgt	taggaaacga	gcaaattctg	tgtcctaaat	2700
cgaaccatac	aacaatggtc	ggctcggttc	ttcttgggag	gtcgcccaca	tttctctttg	2760
tcattacttt	ggattttaat	ggtttgtaat	tcttcttctg	gaaatagaac	gtgctaaaca	2820
taattgaaat	ccattagaga	gcttcacgat	aaaatagcca	atcaagacaa	cgaaaacttc	2880
tatccaagaa	cccgaacttc	gaggtgttct	gccctctgca	ggagcaaggg	ttttgagtta	2940
cgaaataatt	tcgggtaacg	caagacatac	cttgetattt	gcactgacga	aataaattcg	3000
ttccgaagaa	cgatatgtta	ttctctcgaa	atgtatgttt	caaagccatg	aaataccgac	3060
ttatcgctta	ctgcaaagtt	actaagcttg	tgcctaaatc	ccttacctca	tacgaagcca	3120
caactatcca	aatcgagcca	caagtacgca	ctaaagtaaa	tcacgctgat	tacagcatca	3180
ccgagcatat	atttgcaccg	tcgaatatgt	cggtggagga	atgtgtcttc	gatgtatcac	3240
gattcgatga	gcgatataag	cgagggggta	tatcgaaagaa	cactncttga	ttcttttact	3300
tgaacgtgga	aatgtgtgaa	agcagataca	atgaacgatt	gtattgatgg	acatcaatga	3360
acatcttcac	aaaaagggtg	taacgaaagg	atgtagccct	gctgtacaac	cccattatcg	3420
ggcatatctt	gatagtggat	gtattcatct	ttgcagg			3457

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

agtatgtgta	tcaatttggg	agtattgtcc	tatttcaa	acttcaattc	ctcggtgaga	60
tgcttttctc	tctcattcag	gaaatcggtc	tcgtgaccat	cgcccggagt	ggatcatgac	120
cgattgggag	cattgggaca	ttatactcct	gtggggatct	cgttctatac	ttttcagacg	180
atgagttaca	ttatcgcat	tatcgagggtc	aggtgcagcc	tctaaaacgt	tgatagatt	240
acgtctctat	gtctctttct	ttccccagct	ggtagccggc	cccatcgctc	gcgccgagat	300
ttcattccgc	agatataccg	ccgtccgggtg	ttggaaggga	gggatatgcc	gaagccctga	360
tgttgataat	gggaggtctc	ttcaagaaag	cgatcatatc	gactatatca	gcctgaactt	420
tgtggatcgc	gtgttcgatg	cccaacgctt	tacaccggat	tggagaacct	tatgggggtg	480
tatggctacg	cctacagatc	tattgcgact	tttcgggtta	ttccgacatg	gctatcggtt	540
agctctgggtg	ctcggtctcc	gcttcaatat	caatttcgat	tcaccttaca	gtcggccaat	600
atcaccgagt	tctgggcgcag	gtggcatatc	tctctttgtc	at		642

(2) INFORMATION FOR SEQ ID NO:897

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 831 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

```

atttaccacc ttgcccgaca caccttttgcg acgatgtcgc tcagcaaggt gtaccgatgg      60
aaagcgtagt aagatgctcg gtcacacgaa tattaacac gcaatatatg ctcgatatcac      120
caccaagaag attgagcatg acatggacag cttgcgaaca agctcggaaa gttcaataca      180
gcgatgggcg tttaatagat tgtacaacta taaaatcaga catcattatg aaatctacag      240
aaaagaagaa ctgtcccact tccgtttgaa gttggaaact tacctcaacg agcatttccc      300
gaaatgtcgg gaaacaatcc attcattaca gcacggtcgg atgagcgctg actgcctact      360
gtgatgccgt ggcacaaggc ttctctcatc ccaagccgag agtatggcaa gcgaagtcct      420
gtatcaaggg ctgcatttct ccgatacgat acccttgttt ccgctcttga gcgggagttc      480
gagcaggaac gccgtcacct cttcccgaag gactcgctcc gatactgcta aaaaacaagc      540
gatacaaagc gtatttgcca agtatgacct tacagacgac tttgaggcag tccggaatac      600
gaacatctct acaccgaact gacaggcacg atagtcacct tatcgaaagc aatcacctgc      660
ctacaatagg cggagggaac gatacctata atcacccaac atcggaagcg tttcagtatc      720
aagagccaag atatgactcc gcttcacacg acaagggaca agctcttgtc tttgtgtcgc      780
gcacatcttg tccacgctct tgaaactcta aaatgctttg atatggatat a              831

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(2) INFORMATION FOR SEQ ID NO:898

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

```

cttcttgcac gaggcggagc ataaattcac gttcattgac agctcgggtga agctccgctt      60
gatgtcggca gccaaagtcag gagggacagg cttaccggag ttcgcagttc tcgctttttg      120
tcctgtacgg tcttctccat cagatgctgt agcaatcggc gaatttcttt ccgctctgacg      180
gtatataaga tacagattgc cgtggatatt cagctctctg cgcagtccat agaaaggctg      240
catacatcgg ggtacttggt actccaccag tccttaaagg cctcattcca tttctctttc      300
cgctttgacc ttgagtagct ccatgatctt gctatcgaag agagcgatgg cagatctatg      360
gg

```

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 392 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

ggcgaagctg	cccaacgact	cgaaattcta	ttgctgcat	acaaaagacc	gacaaaaaga	60
gctaccgcaa	cgagaccgag	ctgatgtaca	aactcgccaa	gaactccgaa	gcgataagta	120
caaagcggac	gtaacgaac	tggctattcc	acttgggtag	acaagatgga	cgaagccaac	180
aaagctttcg	accggaattc	gacctccaca	gccggcgaat	cgggcgaatt	gccccaaatc	240
ccctcgaacc	gtcctcaccg	agtggcggat	ccgataccga	tggcagcagt	agcgcgagcc	300
gggttcgcac	agcggcgatc	tgtagccgtt	agcacggcag	ggaggatgta	ccaaagccaa	360
accactctct	gcctgcatcc	aaagagagag	gg			392

(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2121 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature
(B) LOCATION 1...2121

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

acgacaagga	ggtcgaaagg	ccgcagcgtc	ttatctgccg	actcggcagg	acagagccat	60
atcttggttc	tatcttggtc	agcaaggcag	ccatatcgca	cgccccacat	ggatcacttc	120
atctccggcc	ataaccgtcg	gaacggagcg	atgcccaacg	actccacttc	gtccgggaag	180
aaagaaccat	cgaccaggtg	tgattgatag	tcggattgag	aatggcaatc	atattgaggg	240
tctgcccaca	tcgggacaat	tcgtacaaga	gagggataca	taggttttca	gctcatcggc	300
ccattgatac	ggcggattct	atcctgtact	ccttcacggt	ggaattcctt	ccgataaccgt	360
cattgttgag	aatagcaaga	agcagtgagc	taattcatgg	ccaccgggga	taccacggaa	420
gccgatcccg	ctatccgctc	ctctacgagc	agatcgatac	gaaaatcatc	tgccgcattg	480
tattccgcac	aacatgatcc	gaaacggatg	caagcccac	gagcatttcc	ttcgccctcg	540
gtaggaagga	tgagacgtat	gagcattgag	tcgtaatgta	taggactttt	cagttgggca	600
aagtaagaac	ccacttgggc	aagagtatct	ttatcaacat	agtcgttagg	ataatgatta	660
aaaaggacct	taatcaagag	ttccgatata	tactgtatt	cggagaaaca	gcatggagaa	720
ctctttcgtg	ccttaagaaa	gaggggtgtg	tgtgatcgcc	tcatttttgc	attccgacac	780
acccctctcc	tcggtttact	gcttagatct	taccaacgag	atcaatgctc	ggttcagtgt	840
ctgctgacct	tcacgccact	tgcccgga	tacctgacca	tctgagcagc	tacgtattgt	900
gcagccttga	tcttacggag	gatctcttct	gatcacggcc	tacgctgttg	tcgttcagct	960
ctacgatttt	gataatgcct	cgggggtta	cacgaaagag	ccacggtaag	ccatatgaac	1020
atcatcgata	ggatacccag	atcgcgagtg	agtgaccggg	agggatcggc	caacatggat	1080
actgtacctt	cttgatagca	ggagaagcgt	cggcccaagc	cttggtgcga	agtgggtatc	1140
gcaactgcaa	gagtaaacct	ctactccaag	ttgcttaatt	cttcatattt	attggccagg	1200
tcttccaatt	ccgtcgggca	tacaaggtaa	agtcaccggg	atagaaaacg	accaaagacc	1260
acttgccctt	caagcttcgt	tggtgattac	tttgaattcg	ccattgtgat	aggcattgag	1320
tttaactcgg	ggaaaacggt	gttcaggata	ggagtcataa	tgcttttggt	ttagtttagt	1380
atgaacgttt	gtttcagggt	caaaactatg	tgtactatcc	tcatccacaa	cagcctcgat	1440
atatcagacc	attgaccgca	tctatataag	gagactgtcg	cacggtatct	tcttgagat	1500
ttcattgtca	atcgactgat	tttagtgcct	ttatagatat	aagaaacctt	ctcttttttc	1560

aaaggtctaa	ataggctatg	aacatggatt	tgtggacatc	gtgttgtgtg	aggggagtga	1620
tattcctcgt	ttgaaagatg	acaggcagtc	cccttcgacg	accaccggag	aatggaatga	1680
ggaaaacgaa	aactgcgcct	tcttataaaa	cattagaagg	cgcagttttc	gtttaaatct	1740
tagctctata	aatcaaggaa	ccaaacttta	aggaaataca	ttacaccggt	tgccgttata	1800
cggacaacat	agaaccgggg	acaagggatt	catttttgac	aagttgacca	gttgcatatga	1860
atcttccatc	ttggaatact	cttcctctac	aacaattttg	ccattctgaa	ctatgctttg	1920
acagaggggg	tagcaacaat	ttgttctgta	gctgtaggct	tgctttatca	aggctttctt	1980
gcccggcatt	gataatagaa	tggttttccc	attggacatt	ggatggtgta	cgaaagcaag	2040
aacatctgta	tctttaattc	aaagccatcc	aacttaaatt	ctttcttgat	ggtaaaactt	2100
ccatcggtgc	aatattttaa	g				2121

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 598 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...598

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

aagctacttt	acgatcgatt	tgctgaacga	tggagacttt	catcttcgat	tggtggcgag	60
tgtacgtaca	cgcataatcct	ccggacgttc	gatctcggtt	cctctacgtg	acgacggatc	120
agatcgagga	attctttccc	atagcgatag	ccttgccgac	acccacgccg	ggaatattct	180
gcagctcttc	gatcgtagcg	gatagaacgt	agccatagcc	tccaatgagg	gatcttgga	240
gataagtagg	gaggcaactt	gagagatgca	cccaattttt	ttctgaggtc	tttctcatgg	300
cgaacaggac	cggatccatg	gccccaccgg	aacctcgccc	tccaccttag	gagcatcgtc	360
atcctcgctc	tcttcgtttt	catcgacgat	ctgaaagaaa	caggtttgag	ggcaaaacttc	420
ttgccttttg	ctgtcacttt	cgcagaccat	aatttttcgat	gtcccgaactc	aaatagccgg	480
aaagcagtcg	tgcttgatga	cggctgtcca	tggtgtctcg	gtttcatcgc	ttccgatacg	540
aagacctcta	aatcctgatg	tccgaatgac	tctatatcag	gagtcaatcg	cccatcaa	598

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2130 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2130

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

tcagctcggt	acccggccga	tagaaagttt	ttgccaaacca	ttcccgtttt	tctcgagata	60
gcattttag	aagtcttccg	tataccgatg	agctgtctca	tggtcgcgga	aaggaacgga	120
tgtccggaag	aggggtcaag	aagggtgcgtt	ctgccacgat	agccctgaat	tggcggcgat	180
tctcttctcc	ggcatatgtg	ccagagagcg	ttgcatctca	ttgtagtaag	cggaggtgat	240
cagctcttcg	tctcttcgct	tatgatcatg	cggacgatgt	cctgagagag	gaagtagcca	300
tttcaccgac	gagaggtatg	gcacgagctt	tcccatcgcc	atcttccgaa	acttccgcag	360
gcgtagtcgg	cagtcttcat	tgagctgctt	gaataagtac	gaagcttgac	tgaatggctt	420
gcaggcctga	tattcatcca	tcatccagaa	gacgtgaggg	cagttgtctc	tgattcatat	480
cgaatgccga	agcagttggc	tattgagctt	gtctttccctc	ccctttatct	cctgcttggt	540
ttctccaaag	tcgtttcagc	cttttccctc	cggctctttgc	tcttcggatc	tgtggaggga	600
taaatcgggtg	gcgcattctca	gggaataaatg	ccgaaaatgt	agttttccct	ctgccgtttc	660
atccaggatc	cgattcgctt	ttctgagaaa	tcactctgca	tacggctgaa	gctccctca	720
cacagcaact	cacatcagaga	agcttacgaa	ggttgtgcac	actgataaat	cccatcgact	780
gaggttgctc	aaggccctct	tctccctgt	cttactctta	ggatatacag	ggtggatgta	840
tggcaatagc	ctatcttatt	gtcgtatatg	gcatagcggg	gacaaagaga	gagaagcgta	900
cgggataaga	cgcctctcca	ctgatcatcc	tcttacctct	tcttcattct	ggaagtctga	960
cagcttgccg	aatgccaaag	atgatccggt	atcgtgcgat	cgtactcacc	attccggcct	1020
acctttttga	gtaagaatcc	agctcgattt	cacccaaatc	gacacgaaag	cgtatacctt	1080
gagcagatcc	atctcctcga	taaaacgaag	catcagatag	gggaagcatc	ctgatggcgg	1140
atcctcttgg	tcagtgcctc	tgcccaatcc	gaagagcgtc	ccaaagcaat	cgactctctt	1200
cgttcaggct	gttttccgag	aggttttcat	gctattttcg	tccagcgcag	ggaggaaactg	1260
cgcccgcctc	tcttggggag	catatcgtaa	aggatgcggg	ggcaacgggt	cagttcgttg	1320
agctatcgag	caagagagct	tctttcgtat	tgctgctttc	gagcctgtcg	tgggatgacg	1380
gatgcagaga	tcgcagaagg	tctcgtgcac	ggctcgtgcc	cattctcatc	ggttcgtttg	1440
aatccgcgaa	tccgtctcag	cataccggaa	cctgctccct	atcgaggaag	aggcaaatga	1500
aaaaggcaag	gccactaacg	tcaggcattc	ttttccgtcc	gctacgctta	tcaattgttc	1560
cttctgtct	ttgccaggac	aaagtcgtcg	ggcttgaaga	aatctgcaaa	ccgcgatgtg	1620
ctctcccgc	tgccaaggag	tatgtcccgg	taataaagga	gctgattcag	ggctgacttc	1680
gagatgctcg	aatgtagtgc	catcaagccg	attgtcgaga	agtcattgcg	caggaaatca	1740
agtaaagaat	aaagctctct	gatcgctttt	gggccgaatc	gggatccaca	ccggtcttgc	1800
tatcatggtc	ttttcgatct	gactatccgg	atcgaaataa	tggaggaaag	gcagatagcg	1860
tcgctatggc	catagacttt	ggtccagcga	tcgacggaga	gcaggtgatc	aaaagaagag	1920
attgcttgag	cgactcttca	ttcaatttct	tcttcccga	ttaatgcgaa	catgactttc	1980
gacttctatc	aaattctctc	gtgcgaggtg	agataaagtc	cgaagtactg	cggatcgtct	2040
tccactgtac	gggattgact	ttgttttcag	aagcaggaac	tgtattcata	ggtttgagtt	2100
ttcttgtcta	tcagcgatat	ataaaatgtc				2130

(2) INFORMATION FOR SEQ ID NO:903

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

atttattccg	aagtaaggac	ggaacaagta	accgttcaag	aagaacagaa	gagtaaagcg	60
gtcggcgagat	ttgtccaccg	ctactttctt	tcatgagcgg	ggaaatggcg	aaaaagaaag	120
gagcaaaagaa	atccgataaa	aagcattcgt	tattttttggc	agtgagcaga	tattctttgt	180
ggaaaatccc	cctaaatcta	tgccccatat	agcaatttac	agtagctttc	tgaacttcat	240
ctccgcaacc	tgttgatttc	atcctttag	gtctcaagat	ggtggaggat	gatgtttcca	300

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catagatgcc gatggtcata tccctattcc tcatagacat gacatctccg ccaatgtatc 360
ctgtaactct ttggcaatat agatgggtctt gcattttttca aagtattgcg acagatgaaa 420
agcgactcat aatcgccctt gcggattttc gcctttctct tcttgaaact ctng 474

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(2) INFORMATION FOR SEQ ID NO:904

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2249 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2249
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

```

ttttaattcc ccttggtacc cggcgcgaga aataaaaaat ttacgcgcc aacgaaaaaa 60
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aaaggagaat acccgaccga aaggcgatag aaccataggg atataaatga ggatattctc 240
catcaaaccg catcaggcta atatgacaaa ggcttacggg gctggctgcc cttcaaagt 300
aaggcagagg aaacgatcag gcgaatggat gaatccggcc ggtcggacga tcattttctgt 360
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aatcctattc gacgtacgag gcaagggaat gcacccacag ctaccgatac gaatgagagc 480
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cccattgaga tgaatatctc gcttgaggag gtattcatcg cagtcgcgcc tcatacaagc 660
tcttgattcc cggacgactg gtttgttcag tccggaacga tttgtcaaaa tagagaatgg 720
gcaaatttcc accaaccgat gaaagggacc atagatgctt ccctgccgga tgccgccggc 780
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```

(2) INFORMATION FOR SEQ ID NO:905

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3110 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3110

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

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ggagatcttc gacatccctt cgcacataca cctgtttcca tattggctct cggctatggc      180
gatccgaccg tacctcgcgt gaggctttca atcgcaaaac cattgaagag gtagtcagct      240
tcgagaatta tgaacggtt gtcaggttta gcggccgttc cggggatgat catttcggtg      300
cggccttttt ttcttgccgg aaagcacctg cctatacggg attcaggggg agatattcca      360
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gtttcggttt ttcacataaa gaggacgtga ctgcacattg atcgacagca tcagggcctt      660
tgtcggttac cggagggtac gatttggtgg gagacggttg ttaaggatga tccgcgcact      720
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ctgccatggg atcggggact atatggtaga gatcggtgga gaggttgctt tcatggcctc      840
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tcgaatactg cgaagtaaac cattgccaaag gtgaaaccga tagccgtgga tattgcaaga     1620
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aaccgccgct atgaataaca tgaaaaattc ataattgatgc caattactta agtgagttat     2040
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aatgccgttt ataataaact caaattctta ctcatcgcg ttcggtatta tctgtgttag     2640
tatttacgta gaatcagccg gagctgcctc gacagactcc tgagcctgtc cggcatgcct     2700

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gattttgcca	tccatatcga	atccgtacat	cacagtgaac	ttaccgctaa	gcccttgtct	3000
gtatagcttt	ctacagcgta	acccactatt	tcctgacctt	tttggccggg	aatacgggtga	3060
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(2) INFORMATION FOR SEQ ID NO:906

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 859 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...859

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

ccctgttcgc	cgtaatatatac	tgttttaatt	cctgtatggt	gcaattgaat	ctgcaaactc	60
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ataaccctcg	atgagtacta	cgagggaatg	gcgttttaat	tcctgtatgg	tgcaattgaa	180
atgaagtagt	tctcgccgct	accgagaacg	cttcttcggt	ttaattcctg	tatggtgcaa	240
ttgaattttt	cagtcggtag	cgaaaactac	tttttatttc	gttttaattc	ctgttggtgc	300
aattgaaata	acgcatttta	tgtgcgccaa	gataattggg	gcagttttaa	ttcctgtatg	360
gtgcaattga	aatttacggc	aaaagggttt	agtaccta	ggaaaaatcg	ttttaattcc	420
tgtatggtgc	aattgaaatc	attttacaat	ggatgccgaa	accgacagtc	taagttttaa	480
ttcctgtatg	tgcaattgaa	ataagaaaga	agaaagaata	agtagaaata	aagatgatgt	540
ttaattcctg	tatggtgcaa	ttgaaattaa	tgttacacaa	tggtatacga	tgatggtaaa	600
cttgttttta	ttcctgtatg	gtgcaattga	aattttacaat	atctaacgat	gatactatag	660
tgcagttttg	ttttaattcc	tgtatgtgca	attgaaatta	aatcaatcag	acagtatcaa	720
atgaagtgcg	gatactttta	attcctgtat	ggtgcaattg	aaatctataa	aagaaattcc	780
aagaagcatg	attctgaggt	tttaattcct	gtatggtgca	attgaaatta	gcaacgaaga	840
cgattttttc	aatgtagta					859

(2) INFORMATION FOR SEQ ID NO:907

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 917 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...917

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

atatggagaa	gaatgcactc	agctcaaagt	cggaaaggcg	attctctacg	gccggaagtc	60
gaaaagggtg	gtagcccatg	caccnagggtg	gaagtccaca	tgctgttgag	ttcggcatgt	120
ttgaagtatt	ggatcagggt	gaagagcgca	aaacgaatcc	tccgccaagc	ccgaaaattc	180
gtcgtgccat	cagcgggtga	tgatggcatc	gtcctgccgg	cgggggtgct	ccttcacac	240
accctgtcgg	gagggagcga	agccaaggac	aaggcggcga	aagtgtccat	gatggattga	300
cccacagcat	ttgcgtcacg	gtaagggcg	actccgtacc	cacaatgcgc	cgatcagaac	360
gatgatacag	gccacgacgt	tgatggtcac	ctaaagagga	taaaacggcg	gatattccga	420
taaagcgatc	gtccccacat	acggctttgg	caatgctgct	gaaagaattg	tccagaatgg	480
tgatgtcgct	gcctctttgg	ctacggcagt	gccatcgccc	atcgagaggc	ccacctgtgg	540
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taccggtgta	tcgcccgtta	cgattttcac	ctgaatgccg	gccttcatac	agtgtgatc	840
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tgacagtgga	gacgcca					917

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3397 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3397

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

agatcaaggg	gcgcatactc	ggccgagagg	gtcgcaacat	ccgtgcattg	aggctgctgc	60
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gtgcgtcgtg	agatagcgcg	tctggcatgc	atcagttggt	acaggatgga	cgtatccacc	180
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gacggcaaac	ggacggtgat	cgaccttgga	atccacggtc	tgcatccgga	actgtccgtc	300
tgatcggtaa	gatgaagtat	cgctcttcct	atgggcagaa	tctttgcagc	attcgctgga	360
gacagctaac	ctctgtgcca	taatggccag	cgattggggc	tgaatccgaa	aaaagccaaa	420
cgcgcgggtc	tgctgcacga	ctcggcaagg	tgcccgacga	tgagccggaa	ttgccacacg	480
ctctcttagg	atgaagctct	gtgagaagtt	caaagagaaa	cccacatat	gcaacgccgg	540
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cgccattagc	ggcgcgcgtc	cgggagcacg	ccgtgagtcg	tggaagccta	tatcaagcgt	660
ctgaatgac	tgagcaact	cgccattcct	atccgggcgt	tatcaagacc	tatgctattc	720
aggcgggccc	cgaacccgtg	tgatcgtcgg	tgccgacaag	acggacgatg	cctcgctgga	780
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tgaatgacat	ccccgatttg	cccgaagatg	gcggattcgt	ggaggtaagt	tcaagaatac	1140
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caactgatcc	gagtattgga	gagaccttcc	atatccgcgt	ggagatgaag	cagatcgggtg	1560
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gcagctgccc	attgccgggt	ttcgcccaaa	gtgaactgtc	tggtggggac	aatggaatgg	3000
gcaagactaa	tctgctggat	gcgctgcatt	tcctctcttc	tgctgcagtc	atctttccgt	3060
accggacaat	atggttgtca	gacatgggaa	gaaatggccc	tggtgcaggg	gctttatcgg	3120
gatgaaagcg	gcgatggata	gagctgtctc	tttctattcg	tccggggaag	cacaaggtag	3180
tgctggaat	aagaaagaat	atgaacgact	gagcgatcat	atcggtcgct	tcctctggta	3240
atagtttctc	cgcaggacta	tcagctcata	ctgggcggta	gcgtgagcgc	agacgattca	3300
tggatcagca	gctttgccag	caggatcctc	ggatctgtcg	gctctcattc	agtacaatcg	3360
gcatttgcaa	cagcgcaata	ctgctcaagc	aggaccg			3397

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2031 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2031

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

cgaggttgat	ttttgcattg	ggaaaaacga	tcatggctca	actatttgaa	tcgattattc	60
gtcatgcaaa	ggcatagcgc	aggatgaaaa	gaacagccga	atgtaaagag	gcagggatat	120
actgcggtat	tgtccggaca	agagtttaca	aagacgaatg	ccaacatccc	caaggccatt	180
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(2) INFORMATION FOR SEQ ID NO:910

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2367 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

ggtcaaagag	tttgaaagga	tctgattctg	agcgatagcc	caagagattc	atgggtcttct	60
gtcctaattct	gcatcaatgt	atgctcgaat	gcgagtgtct	ctcttgagg	atctgtgccc	120
gatttggttcg	ttgcaatgta	ttgagagacc	gtgcgttaag	tgcaaaatga	aggctgtgcg	180
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atgtagctcc	gcatttttat	gtcaata				2367

(2) INFORMATION FOR SEQ ID NO:911

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3325 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3325

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

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ctgcatccat	ccctccctcc	gtgagatctt	tcgaaagctc	actgtcagcg	cgcatttttc	120
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aatttatatg	ataaacgatt	aaatgatagt	tagatatgtg	ctggaatacc		3300
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(2) INFORMATION FOR SEQ ID NO:912

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3171 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3171

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912

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tcaaaattat	tatgggtatt	accggagcat	attagacacc	gatctatata	aattcaccac	480

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(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6049 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...6049

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ggtgaagaca	aacgagatat	cacggataat	ttgcctctct	tggcttatat	gattttgcgtt	180
ataactgtcc	gactaagggg	ctattgtcct	attcggaag	aatcctgagc	gacacgtaca	240
tgggggtata	ttcaatatgt	tcgcttcaag	ggtaaggatc	gtgcgggtga	tatttcaacg	300
aacataagtt	tagcggtaat	ctttgtcggg	tattgcctaa	gatgatgctt	ttgtcgagac	360
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cagccaagaa	aagcacagga	aagacccaag	aaaagcccaa	gaaatataga	ggagaaatat	840
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acaagacaag	gccccgccaa	agaagaaaga	cacttcgttt	acggactatc	aggactcgcc	4260
cgatcttcgg	atgcagtctc	cctaccgcca	accgtatcaa	gcaaagtgga	aaatagaccg	4320
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gggcgcaaag	taggaggacg	aagatgaacc	ccccaatgca	ccctttcagc	caccgatgga	4440
cattgatgct	gtgtggcaaa	ttcgctcatc	cgtgtgacgg	atgcctttgc	tcttccaccc	4500
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cttatggg	acctgatgca	atggactggg	agaggaacat	ccacattcaa	accgttctgc	4980
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ggaaagtctt	tgctcatcac	caaggacaac	agtgatgctg	acaggagcgt	tgtctcgctg	5100
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gaactaagt	gtgaggagca	tcgacagcct	tgcgagaagc	ctttggccag	gcttgtgagt	5280
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tatggacaga	cgaagctcaa	agaattgctc	cgctttctcg	tgaacaaacg	atgctcgtca	5400
aggctagcag	atgacgctat	cagttcaacc	cagacttcct	tactgacaca	tcgggttcggt	5460
cgggcgaggg	ctatatatgc	ctgaccaacg	accaaccata	aataaagaat	ggtcggacgg	5520
aaggagtggc	tatagtaacg	tccgaccgac	caaagaagaa	ccgccaaaga	aaaaacagca	5580
tgcagcacac	gacatcaagc	aagtctccat	cgtggactac	ttagcacaag	ctggcttgaa	5640
gcaaagctca	tcaagggcgt	gaactattgg	tattgctccc	ctctcgctca	gagctcacgc	5700
cttcgtttaa	agtcaatgca	gagcgcaacc	aatgtatgac	ttcgccacag	gagaccacgg	5760
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ctatctgcgc	taagggtgta	cggctagcac	cgtctttttc	ttttggagga	ataactccc	5880
aagcctacaa	agatcctcca	tggagctcat	cagcgtacaa	gctgtgaaga	tcccaagctc	5940
ttactgtatc	tctcggagcg	agggctacag	ccctctgagc	ctctcccttc	ttatcggaag	6000
tctattacaa	agtctctagg	aagtgttctt	tgcccgggga	tcctctaga		6049

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 706 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...706

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

atcggagcta	agctctaccg	ttatgcagga	gatagagagg	taattctcta	gtacttgcca	60
atatactcac	ccttcaaagc	agcattgcta	taccgacttg	tatttcttca	agctctctct	120
tccgcttttg	gtcactttcc	gtatctactt	tcgggtaata	ccatcttttt	catcctgaaa	180
agcatttttg	aatttcacg	aagttcgatg	aagatttttc	cttttatctc	ttggagtttc	240
tcctctcaag	ctctcctttg	gcaaaaagtc	tatcagggaa	taagcccacc	ttttagaagt	300
ttcttctgga	acatcttttg	catctcgatg	tggagagaga	acccaaagct	tccttcgggt	360
cgctcttctt	tgggtagtct	ttcgagcaat	tccgcattat	ccaagagaag	aggtagctcg	420
ccgtccaaaa	ggacttcacg	ctcgagcctt	gtctaaggtt	ttacatatcg	gcccattggt	480

tattgctgtg	atatctcatt	actcatgaca	attcttattt	aattgctcgt	aaatgtcttc	540
atggctcga	aaatctcctt	tgcatccgtt	aatgaatcat	attcacctct	tgagattcaa	600
aattaactct	gagaatattc	attaaaacat	tgatagacaa	tatcttcttg	aacttaactc	660
taagacagcc	ccttatgcct	ggatgattac	tacaacctgc	ctcctt		706

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 801 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...801

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

accgaaaatg	ccgagattgt	tgacgtgtac	tgaaaaaagt	tgacagttgg	cgggatgcaa	60
ccagtatcca	ttatgggcaa	acatttaaac	aactttgacg	ccttagcatc	cttgaggatt	120
acctctcggg	gtcagatagc	aaagtagcat	tgagcagaaa	tatgggtctaa	gtcatgggtct	180
cattcgctct	tggcttgtaa	atttggaactc	gaagataaag	ttcatccggg	cccaatgaaa	240
gtgtccaatc	ccccagagt	gagctacccc	tgaacgaaaa	agaagagtta	gagcgctacg	300
taaagaaaat	cgtgtcctca	agagtcgtct	caagcgagaa	gaatagggca	tcaagcctac	360
aagctacttg	tagagttggc	agaagaaacc	taggcattca	gatacgaaaa	aactccgaag	420
ccaagtagtt	caccgtttat	cgagccagag	cctaggtatc	ctattgctcg	actctgcgaa	480
ctgcttggtc	tagccgtcag	gccttttata	aacgtcatct	caacgattta	gctaggcaca	540
ggaggatgtc	ctatgcagta	gtatcatcca	atattgttgg	cacttaagca	agcagagcac	600
ctacctcaag	ccggcttccg	agagctcatg	gtgcttttca	gcaatacttc	ggccccaaagt	660
tcacgcttgg	gcgcgatcgc	ttttgcccct	actcagacgc	catggtatga	tgctgcgcaa	720
acggtctgtg	cgccccggac	aaccaactct	cggcataggc	tctacaagta	tgaagacctg	780
ctcatacaga	gcctaagttt	g				801

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2727 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2727

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

tcacgggttg	cgataaaatt	cttttcctca	accttcgtaa	tgaggtagca	ccatcgcgga	60
aaaagatgat	gacatcgtcg	aggtcggagc	agttgcatcg	aattcatcgc	ccttgagtc	120
cataccgatg	aacccttctt	cgcgggtata	tagagttttg	cattggcttc	tgccaccttc	180
gtggcctgaa	tggtgcgaaa	cgataagtt	gtgtccttcg	cgggaaacgg	gaagcatagt	240
gctcggcaga	tactcgaacc	aacggatggt	gtaagcagta	atctcacgga	tattttttcc	300
agttcggcaa	tatccttttc	gagctgaagc	atcatggcct	cgtcttgggc	aaattgaagc	360
ggaggatccg	tgccatgcgt	atttccaaca	actcttcaga	tcgtcgtagg	taatggggcg	420
aataaaaacga	tgggcataag	gtccagcctc	gcctctacat	gcagtagagc	atcctgttcg	480
ctctcggcct	ttcgaactca	cgatctttat	agatacgctc	ttctatgaaa	atccgctcgg	540
cgatgctgcc	aaatactggt	cccgtttctc	ttccaaacgg	atcgtcagtc	ttgcttcagc	600
agctcccgtg	ttcgtccgc	actataacgc	agcaaatagt	cactcccaag	aataccggct	660
tgctgctccat	gatgacgcaa	gcattagcga	ctgacttact	tcacagtctg	taaaggcata	720
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tcggagccgt	catatcatct	attcgtttga	tcttgatctt	gcccttttca	ttgctttcag	840
aatggattcg	atcaggggaag	acgtcgtctt	gccacagggc	agtcggtaat	gctgagagta	900
cgattgtcca	gtttgcgaat	cttagccctg	ccttgatctg	tcctccgcgc	cggccgtcat	960
tgtaccggct	ggcatccatc	taccacgggt	agggaaatcg	ggataaagat	cgaaagactc	1020
tcctctcagt	gtgcgataca	tgccatgagc	agttcaccga	gattgtgcgg	caagacctgg	1080
aattcaaacc	tacagcaatt	ccttccgtgc	cttgtgccaa	gagaagtga	actttacggg	1140
caacgccacc	ggctcgtcct	cgctgccatc	gtaagacgtt	tccagtgcgt	aatcttatca	1200
ttgaaaagag	tctcctgagc	caaagtgaga	gtttggcctc	gatgtaacga	ccggctgccg	1260
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gaggatgcgg	cgttgtagcg	gcttgagtc	tcttctatat	ggggcacggc	acgctccaga	1500
attacgtaag	aagcataatg	agataccagt	ttcgatacat	gcccccgaga	tggtgtgtag	1560
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tcgcaaattg	cgaggcgagc	atttctgacg	ctttcgagca	gttgctccgt	tgggcaaaa	1800
aaacggcacc	acgctgctga	acgaagatag	aagccaagag	tatcagcccc	gccaagacaa	1860
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tgagtacctt	tatccactgt	ggcggatatag	cactttccgt	cgagatagct	ttcccatcaa	2040
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ggcaacatac	ggccaaagca	aacagcccga	tgagcaacca	ctgtgttgca	aagggaaatcc	2160
ggtgctcagc	caatggtaag	taccctccaa	agagaggaac	gtcccttaag	aaaaccgagg	2220
aatacaatac	taagcgcaag	gagatagagg	cgaaagggtt	ggcctttgac	ggggaaaaaa	2280
agcaaaccac	agctatcaga	atgcggcgat	ggttccccct	gtgcggacga	ttccccaaac	2340
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ctcgggtgtc	cgctcatgctc	cagcagcagc	taccgaggat	gcggtcaccc	ggaccaaagg	2580
cgatgactac	gggagtagcc	cgttgtaccc	ttccacgtcg	tctgtatagg	gcgatgtgta	2640
gagcaataac	ccaattgacg	cgccttgcca	tccataacaa	tggtacgagt	actatctctt	2700
ggacgatatac	ggctgccatc	gggtaga				2727

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3195 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3195

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

gtcgccatgg	ccgctgatgc	gtattactac	accgcgatac	ttctggatag	ctccttgtaa	60
ccctccttga	tacgatattc	aacagtgatg	gtgtcaccct	gttaaacttg	ggatgttctt	120
tccctgattt	gaactcttcg	ttaacgattt	aataaaatcc	atttgatttg	ctttttggat	180
tagctaaata	ctaaaccaat	atacacaggt	cgcacgttat	ttcctgtcag	agattacgca	240
aagcgctgca	aagtaacaaa	aaagctctca	atcggcaaaa	ctgaacttca	acactcatat	300
tcagaagaaa	ctcgttcgaa	tgaaccaca	acaactaatg	acctacaact	ttaattttta	360
tgcgtcagcc	ctgtataagt	gctgcttatt	gtcaaaggtc	tcatattata	agtacttttg	420
ctcgaaagac	aaactacaag	gtggaaccct	tcgtaacact	gcacgtacac	tcccaattct	480
ctctgcttga	ggacaggccg	ctatcaatga	cttgggtggac	aaagccattg	ccgacggtag	540
ccgggtattg	ctctgaccga	tcatggagcc	atgttcggca	tcaaggagtt	tacaactatg	600
tggagaagaa	gaacagcggg	cacaatgcga	cattgaagac	tgtaggcgcg	aactggatca	660
actgaacgac	tcgaagagtg	ccgacagctg	accgatgaag	agcgcaaccg	cattgtcaag	720
ttgcagcaga	agataaggag	accaaaaaac	tcctcttcaa	acctatcctt	gggtgtgagg	780
catatgtgct	cgacgtacgc	gattcgacaa	ggataaccag	ataccggatc	cgttcacccc	840
agacgctcca	tcgatgccag	cggttggcac	ttgatcctgc	tgcaaaaaac	ttgcgagggg	900
acaagaatct	gatcaaaatg	gtcagctatt	ctggacagaa	ggacagtact	accgtccgcg	960
tatcgacaag	gagcttttgc	gaagtatcat	gaaggatatca	ttgtctcttc	ggcctgcctg	1020
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tggttcaaag	agcttttttg	ggacgattac	tatttgga	ttcagcgac	gagacgcata	1140
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gcttggcaag	aagttgggcg	tcaaattatt	gcgacgaacg	atgtccattt	ctgcaatgaa	1260
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ttcgaggatc	tacctgagac	tctttccaac	acattagaaa	tcttgacaag	gtagagttaa	1440
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cccgatatag	acgcgacttc	gatgatgacg	ggcgtgccga	aatactccgc	tgggtgacgg	1860
aaaatacggc	aaggagagag	tggccacat	catcacctac	ggtacgatgg	cacaaagagt	1920
tctattaagg	atgtggctcg	cgtaacagag	ctgcccttac	cgaaagcaat	cgttttagcca	1980
agctcgacca	gacaaaattc	ccggagagag	aaagtcaatc	tgaagaaagc	aatcgaattt	2040
gttccagagc	tgaagcaaca	tcgctaagct	ccgataaggt	aatgcgcgat	accctgaaat	2100
acgcccattg	ctggagggga	atgtgcgcaa	tacaggtgtg	catgcctgcg	gtatcacatt	2160
gggaaaacgg	atatcagcga	tgtcgttccg	gtcagtacgg	ctcccacaaa	gacacgaagg	2220
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ggacttcctc	gggctgaaaa	cgctctgatc	atcaaagaag	cttttgtcaa	cataaagcgg	2340
cgccatggca	ttacttgaat	atagacacga	tcctctcga	cgatcctctt	acataataagc	2400
ttacagcgat	ggacgtacca	taggtacttt	ccaattcgaa	tccggtggga	gcaaaagtat	2460
cttagggagc	tacagccctc	tgctttcgag	gacttgatac	gatgaatgct	ctctatcgtc	2520
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ttacgacctg	cctgagagga	agaatatctc	aaagaaaact	atggtgtgac	ggtgtatcag	2640
gagcaatcat	gcttctgagt	cgcaagcttg	ccggttttac	ccgaggccag	agcgagagct	2700
tcgtaaggct	atgggcaaaa	aactcatcga	aaagatgaat	gttcgaagg	gaagtttctc	2760
gaggggggga	ataagaatgg	acatccggaa	gaattctgga	aaagatctgg	acagactggg	2820
agaagttcgc	cagctatgct	ttaacaagag	tcatgccacc	tgctacagtt	gggtagccta	2880
ccaaacggct	tcctgaaagc	aaacttatcc	tgtgtaatat	atggcaggag	cattgagccg	2940
aacctgaata	acatcacgga	aataaccaag	ctcatggatg	agtgcaagtc	atgaagatcg	3000
gcgtattggt	accggatgtg	aacgagtcgg	aaatgaaatc	tcagtaaatg	ccaatgggga	3060
tattcgggtt	ggtctcagcg	ctgtaaagg	gtaggatcgg	gagccgtgga	gcagatcatt	3120
gccgaacgcg	aagccacggg	ctatataagg	acatcttcga	ctttgtggag	cggatcaatc	3180
tctctcctgc	aatcg					3195

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1872 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:918

gcggtgagcc	ctacagcgta	gcgagccgag	ccgtagagtt	ccgctccgga	gccgtagagg	60
tggccgagct	gagccgtaga	gcccggcgca	gcgagcccac	agcgtagctc	gaagagccgt	120
agagcgcagc	tcggtacgct	ctacggctag	cccgagtcgc	tgtagggcgt	agctcgaccc	180
cccttcggag	tatattcgaa	cggctataaa	acaatgagga	ttcgatctga	agaaaaacat	240
gcaattgctg	tttgtcagcg	tatttcactt	ctcagttcaa	agatttcagc	ttcggaggct	300
ccgacatccg	atgagacgtc	aaacataaaa	aagtaacgca	atggatcaag	ggacgagtac	360
gttagatgta	gccaaaagga	ttacaacgta	ccttagctcc	gatttatgaa	aaatatttgt	420
cgggtggggt	taagattttac	caaagaaggt	gaaattgaca	gaaccgtagg	ctctatgttc	480
ctcgaatcgg	gatgtttctg	aaagctgaaa	tccttagggg	gctcgaggat	gaaaagccct	540
cttctgccag	tatgttactt	tctaatactt	tggtcggtag	ctgctccact	ctgtcaaggc	600
gtagggtgga	tcggcaaaga	ctaagtcata	gcggtggata	ctttgttgcg	ttccagaaat	660
aaaaatacat	ccgtctcgaa	gactctcagc	agttttcttc	gttcagatgc	ttaatgaggt	720
tgcgaataaa	ggctgatgct	cacggcggtt	ttctatggaa	gtgacggaag	aacaaccccg	780
agatctaatt	ccaatgctat	actccccgtg	ccggagaata	ggtcgatagc	cgaagtcctt	840
cgaaatcgaa	acggttggat	aggatgttga	agaggttctc	ttggcaaaat	ccgttgtagg	900
acgggcattg	aagcttttgg	gtacatcgaa	agcctgtgtc	cgtatttacc	tctgattaca	960
cgcatagggg	aagaagtggg	gagagagttc	gaatatggcg	ttacaccggc	tctttgcaca	1020
gttcgatatg	cggaagaacg	gctccaatat	ttgcctgaga	tcattctttc	cgacagaggg	1080
tcgcggatat	tttgttggat	acagataacg	atacgggtcat	gctctattcc	aaccgtaagc	1140
tcttccagac	ggtgaccaga	tagaaaagga	cttctctctg	atggagcgaa	cgcccttgatt	1200
gtccgtgaag	ctgtatgtat	tggcaagagc	agactacctc	cttcgaatac	gaagaggtcg	1260
agtttgtcat	gccgagattg	agggcaactc	ttttggccgt	atgttgacctg	ctctgtcgct	1320
ccgttctttg	aaaaagggga	taaagccggg	ggtgaactct	gttccgatct	gttccttctt	1380
agaaattcat	agagaggctt	gtcccaagcc	aaaatcacga	tttatcctga	tgaggcaggt	1440
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ttgcctcttg	tatcgaaag	gctaaaaaca	agtcctccga	taggaatcgg	atggacatat	1740
cgtagctttc	tgcagtgtga	gcaggagggt	agccggaata	tcggaagcag	ggatttccac	1800
gcgctatgct	tccaaattat	tcccagttac	cggtattctt	cacttctttc	agcgatccga	1860
tggaaggccg	gc					1872

(2) INFORMATION FOR SEQ ID NO:919

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3499 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

gtaccccgcaa	ttacatcaag	ctattgctgt	gatacctat	gccatttgac	gtaataaagt	60
tatttttgtc	tcgcaaattg	atttgctatg	aaaggaatat	ccttgccgga	ggatccggca	120
ctcgtctata	tccgataact	cggggtggag	caaacagctt	ctacccggtt	atgacaagcc	180
gatgatttac	taccggtttc	tacgcttatg	cttgccgggt	ttccgggatgt	cctgatcatt	240
tccacccgca	ggacttatcc	atgttccaac	ggctattggg	tgatggccgt	gatccggtgt	300
ccggttggag	tatgcagagc	aaccctcccc	cgatggattg	gcaaggcttt	catcatcgga	360
cgtgaatttg	taggagacga	ttgtgcctgt	ctgtcttagg	agataatatc	ttctacgggc	420
atggcttcag	ccaaatgctt	cgtcggcagt	tgccgatgcg	gaaaagggtg	tggccaccat	480
tttcggctat	atgtgaatga	tcctgagcga	tacgggtgag	cggaagtggg	tgctaccgga	540
aggatcatcag	cctggaagaa	aaaccggaaa	agccgaagag	caactacgag	tagtgggact	600
ctattttctat	cccaatgatg	tacttgatgt	agcagcaatg	tcaaaccatc	ggcgcggggc	660
gaattggaaa	taacctcagt	caatcagagt	tcatgcttcg	caagcagctc	cgctccagc	720
aactggggcg	tggtttgctt	ggctggatac	aggtacacac	gaatcactga	cagatgcttc	780
cgttttgtat	cggtcataga	gaaacgcca	ggcttgaaga	tcgcttgctt	ggagagattg	840
cctacaataa	tggctggctc	accaaagaag	atctggctcg	tgggctgaac	cgatgaaaca	900
gaaatcaatac	ggaaagtatc	tgcttggtg	gtcaaataga	gagcatccct	ttcatgaact	960
ttatccccac	cgaaataccc	aagttgttat	ccttgagccg	cgattgttcc	gtgacgatct	1020
aggctatttt	tcgaatcatt	cagtcgcca	gagatagaaa	cgggtatttc	ccccattatt	1080
ttgtacaaga	caacgaatcg	gcattcccgt	atggtgtact	aagagggttc	actttcagaa	1140
acctcctcat	gcccagagca	agctggtagc	agtagctgtg	ggtgtgtgat	tgactatgcc	1200
gtggatattc	gctttggatc	gcctatttcg	gcaaatatgt	agcagtgagg	ctttccgata	1260
cgaacttcag	acagtgttta	tcctcgcgcg	attcgctcac	ggttttgtcg	tgctaagtga	1320
cgagtcgtat	ttcagtacaa	atgcgacaac	tactatgctc	cacaaagcga	agagccattg	1380
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atgccctgct	gatcatat	ctacggatta	tgtatttgat	ggtacggcta	atatccccta	1860
taggaagaca	tcccgcagac	tcctctcggt	gcgtatggcc	gtaccaagct	aaaggagaa	1920
aggctgtgct	ggcagccgac	tgccgataca	tgatactgcg	acatcggtgc	tgactcatc	1980
gttcggcaat	aattttgtga	aaacgatgct	cggtgacag	ctgaacgcga	tacattaaac	2040
gtagtcttcg	atcaggtcgt	actcctacct	atgctgcgga	cttggtgct	ttcatacacc	2100
gtctggcata	ggacaactgc	ccgttaagac	ggggctgtat	cacttttagca	acgaagtgtg	2160
tgctcctggt	tcgactttgc	agtggccatt	gcccgaatga	gtgggtataca	gcatgcagga	2220
tcagcccttg	ccatagcgat	gaatatccga	caaggtaaga	cgcccgcat	attccgtctt	2280
ggataagacg	cttattaaaa	acatttcgac	atcagcatcc	ctcactggca	ggattctttg	2340
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gattatgaga	tcataatct	cgatacgtg	acatatgccg	caatctggcc	aatctcaagg	2520
atataagatc	caagccgaac	tatcgtttgt	aaaggcggt	atgtgcaatg	ccaatacgtc	2580
gaagaaagtc	tttgctctta	tgccatcgac	ggagtcattc	atctggcggc	cgaaagtcat	2640
gtggatggtc	tataaaagat	ccttttagctt	ttgcccgcac	caacgtaatg	gggacctgac	2700
gctcctgcaa	acggccaaag	aggcttggca	tggggaatac	gaagcaagcg	tttctaccac	2760
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ccaaatacga	cccacattct	cctattccgg	cagcaaggct	tccagcgacc	attttgtccg	2880
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cctatcaatt	cccggagaaa	ctcatctctc	tcttcattaa	caatatccgc	acaataagcc	3000
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cgtgccatcg	atctgatatt	ccatcgggca	agaatggcga	tacctataat	atcgggtggc	3120
ttaacgaatg	gaagaaatcg	atctcatcaa	ggatgatgac	cgctgggtgg	atcgtctttt	3180
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ccaattcgaa	gaaggcatcg	agaaaaccgt	ccctgggtatc	ttcacaatca	agactggctg	3360
gatcgggtga	ccagcggcga	cacctccgat	actacgacga	gatgtactcc	gaacgatagt	3420
gctttttggc	aaattttgtc	tcgtttccga	atcaatcaac	caaacaatc	acaataaaca	3480
ggaatcaaaa	aatgaagac					3499

(2) INFORMATION FOR SEQ ID NO:920

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 602 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

tctcagcgcg	ggattgtttc	aaccgcagga	gcttcctctt	ctactgcaga	gtctccatag	60
ctaccgaagt	ggccgaatca	gccgctgcat	cttgagcgaa	gcctgagtc	tgaagcctac	120
tgacataaag	gccacacatg	caattgtgca	aataactttt	tcatcgcgag	tcttttggtt	180
agattagtac	ttttcgtttc	ttttattttg	ttccttaata	atcttctgcg	cggagagagc	240
gggatcgaa	ccgcgaaacg	ctttcggcgt	ttacacactt	tccaggcgtg	cctctcaacc	300
actcgagcac	ctctccttgt	cattccatta	aaaactccct	accgtcaact	tgggtgcggc	360
tatagcctta	tgcatacgcc	tcataaccac	gattatgggt	gggaggattg	ccgatcaata	420
caacgtctta	accggattca	tgcgaaatct	atgttttttt	catcattcca	tccctatttt	480
ggagcacatt	ttcagttgga	atacttaaat	cggacgaata	atttttccct	cttgaaacta	540
aaaccgaaaa	aacggcatgc	atttcgggcc	gttttttcag	ccaaaatacc	ggatccagtc	600
ca						602

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2483 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

cctagtattt	cggcacattc	tgttaaggatc	ggtatatcct	ccgtatagac	cgcttaacag	60
cagggtgccg	ccattaccga	gtcgggatct	gatatgcagca	tatcgccag	cagaatatta	120
cggttgatgt	ttgcgataat	cagatcgaca	tccgacagtc	ggcaagaaga	gatgcgtcac	180
ctatgcgaac	atcaattccc	gaatatcatt	gagagctgca	ttctcgccc	tggtgcgtat	240
gcaccgtcgt	ctatgtcgat	agctgtgaca	gaagaggctc	ccaatttgcg	agctagatgg	300
caaggattcc	cgtaccgcaa	cccatgtcca	gaactctcaa	gcccgcaaat	ccatatcgag	360
aagatagctc	atcatcagcg	aagtggctct	atgtgtcctg	ttccaaaggc	catttgagga	420
gaaataatca	gctcgagcgg	ttatccggat	cggtcgggat	gaagggtgct	cttacaaggc	480
atgtgtcttc	atccgaatgg	ggcgggaaga	gttcttttcc	cactgttcgt	tccagttgaa	540
tccggttgga	tctcggatga	gtattgccac	agaagccccg	gcagtggaac	tgctccaata	600
gcgcaggaat	gtcggatgct	atatcggtgg	agacaggata	taagcacgaa	ggcaagtctc	660
gttttgctcg	aaactctcga	atcctattcg	gcaagttcgg	cactaagcag	gtcgtatgcc	720
gtctccaaag	tcagtcgtcc	ggacggtgtg	tgagttcgaa	tgcgtatgcg	atgtatttca	780

ttgcaagagg	gtagaagttg	gctgtgtagt	ttgattcgtc	tgttgagata	gggagtcac	840
acacgatggc	caagcctttg	agcatggatg	agaggctgat	cgccaccata	cggattccgg	900
tccgaagccc	ataccgataa	gcagcagagc	cgcggaatcc	gcaggagggtt	ccccccgata	960
ctgataacgg	cgggaaaaac	gtccgtgccg	tcccgtagaa	caggccttga	gtggctatatt	1020
ccagcatcac	agtagctggg	aatagccact	gatgcgcaga	taaatacctc	ccgacagaag	1080
gcttcttttt	cgggtaccac	gagtcggaag	acttcattac	cgaagaaacg	aaaagcactg	1140
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tttgccctga	cgggcagcgt	aattagagcc	acgaaagtag	ccagtgccgt	actgaatcct	1260
tgcgaagtgt	tccagtgtatg	gcttccagtt	gtccgcctgt	tgtcagcgtt	gccactccga	1320
tattcctcct	tgctgcgaag	ccagacggcc	aagcatcata	ttgatgatgg	cgagaggag	1380
ttgagagcag	ctacaggcag	gccgatacgc	aagatgcgac	cctatgtata	ttgtccggtc	1440
ggacgaagaa	cgggaagcaa	tccaacagct	atcctgccgt	ctgagcctgt	aaaagaatag	1500
aacgaatacg	aatacctgac	gatcagcgtg	gctatggcgg	ctccgatcgt	cccccatccc	1560
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gccccttgcc	gaggctgtgg	cctatcgtca	cctcactgcc	ggtcttattg	atgacgatat	1920
ggaactggag	agccacgtca	gtaccgccac	aatacctacg	ctgccacgga	cttgctaccc	1980
aaccggccta	accaggccat	atcggtaaac	tataggccat	ctgcacgaag	gaagtaccca	2040
tgatgggcag	agccagtcga	gcagacgtcc	ttttatttcc	ccttctgtga	ggttttgcag	2100
tcggatatac	ccattcagag	cctttgctgc	attccatcct	tgcgctacca	aggtaactcc	2160
gttccgtctc	gtgccacgag	gaggtgaccg	tcggcctcct	ctgtatatgg	ccgatcaggt	2220
ggatgccctc	tattcgtctga	atatcatcga	gacggtgaga	ggtacggtaa	acaacaattc	2280
gtagtcttca	cccccggttca	gagggctgtg	gagagattca	tattgaactc	ttccgcatcg	2340
gctgccgtct	ggagtcgata	ggcaatttgt	cgtcatatat	acggacgccg	acctttcggc	2400
agcgctatat	ggaggaagtt	cgggacgata	gcccgtccga	atgggtccatc	tggcaagtcg	2460
gttgatgccg	gccgacgcaa	ctt				2483

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2288 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2288

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

tgaaagtgga	ttcgcccatg	gagatgttgt	ccgaagctcc	caccgcgcta	aaatgctgtc	60
caccatgccg	atacgtgcac	tttcggccgg	tacgaaaggc	ctatctgtgc	catcagagag	120
ataagggccg	tctgcctgag	cagggcgact	tgccgctcat	attggggccg	gtgacgatga	180
tgacttgcgtg	gcggtcgtgt	ccaaataaat	atcgttggcg	atataagggtt	catcgccggg	240
tagctctgtt	cgatgacggg	gtggcgggccc	gctttgatgt	cgatggtaaa	gctccgtcca	300
ctacagggca	gataaatctg	tagcggcgtg	ccgactcggc	aaagagagga	gacaatccag	360
agaagccacc	gcttgactgt	cctgttgagg	agtgccacgt	atcgctgcag	ttcggtctaca	420
agcaaggcgt	acagctgtcc	tcgagggctg	ctattttctc	ttcggtcccg	agtatttttg	480
cttcgtactc	ttcagctcct	ccgtaatata	ccgttcggca	ctgacgagtg	tttgcttgcg	540
atccactcgg	ccggtacctt	gtccttggtc	gtgttgcgga	cttcgataag	tagccgaaca	600
cattgttata	agctactttg	agactgggta	ttcccgtcgc	tctatctcct	gctgctgtag	660
cttgatcaga	tagtctttgc	cgctgttgcc	agtgcacgca	gttcgctcag	cgtggcatcg	720
acgccatgtg	cgatgcgggg	ccgcgaccga	gagcggccgg	agcatcgggc	atcacctcac	780
gcaaatcttg	tcgcgtagtt	ccttgccacag	ctccaacttt	ccccccagtg	tgccagattc	840

tcttcgtctg	catgggtaca	tacttccttg	atcggttcga	gtcttgacag	gcgacacgta	900
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gtcgcctatc	tctgtcagat	ttcggcaatg	atggctcgct	cttcaggatg	tcggaagaaa	1020
aactccaccc	tcgctgtcgg	gcttgatgct	gtgcagggtc	cttgagtggg	aatacgatca	1080
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gtacataccg	gttttcatcc	agtcgctcag	cgatgtgatg	tggtgtagct	gatggtgctg	1260
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agaaatacga	agacctcttt	gccgcaggag	acggctgcaa	ggaaattggt	ctccttagag	1620
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taaagtaaa	gtgctgaggc	tgattaaagt	atgtgactga	agccgaatgt	cgcaagaacc	2160
cggcaatttg	cgcattatga	cacaccgcca	tctcagcgtc	aaagtctccg	cttagagagg	2220
ttacgggtaa	gaagagaaga	ggatagaggg	aataggcttg	agtggtattat	tcctcgccct	2280
cctcttcc						2288

(2) INFORMATION FOR SEQ ID NO:923

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 716 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...716

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

agttgatctc	taccaaatat	cgctatcagc	tggcagcttc	tgtaatgctg	gacagagcaa	60
gaatccgatg	caggcagaga	tcgatgctcc	ctgcgagtga	tcgatttctt	gcgtttcggt	120
gcctactatg	cgggccagat	ctatgccatc	aacccatcag	tgagaaaggc	attctcaatc	180
gggtggagta	ccgttcctcg	aagggttctg	tttggccggt	actcctttca	atttcaccag	240
tattgttcca	acctgaatct	ggcaccggcc	atgatgggga	atactactat	ctggagcctt	300
ccactacagc	tcttcatagc	aactacctcc	ttatgaaaat	cttcaagagg	ccggtttgcc	360
cgatggtgtg	gtcaatttcc	ttcccggaca	ggtagcttga	tcggtcgggt	agccacggcg	420
aacgaacact	tggccggttt	cattttaccg	gttctactgc	tacgttcaac	acgctgtgga	480
agagcatcgc	ggcaatatag	atcgctatcg	tggctatccc	cgtatagtgg	gcgaaacgga	540
ggaaagaact	tcgtgatggt	tcacccctcg	gctgaagcat	gcgaagtgct	acggctcttg	600
tgcgcgagc	tttcgagtat	cagggacaaa	agtgttcgct	gcaagtcgcg	catatatccc	660
tcgttctttg	tggcccagcg	tgaaagagtg	atgggcgata	tgctcgacag	tatcaa	716

(2) INFORMATION FOR SEQ ID NO:924

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2330 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
 (iii) HYPOTHETICAL: NO
 (iv) ANTI-SENSE: UNKNOWN
 (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
 (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2330

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

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tgtgaaactt	cttcggcggtg	gacgtctctt	ccttcgggtg	gcaggggcta	tcgtcctctt	120
cgtgatggcc	gtggagatga	tattcgggtg	cagatattca	aggacgacgg	gcctgccggc	180
agtgccacca	tcgtacgctg	gtattccctc	tccttgagg	ggcagcaacc	tttaccacca	240
tcctccgctg	cgtgccgacg	gtatagcgat	gaccaacatt	gccattgcca	tcctatcaac	300
gtggctatga	tctacctcat	gctccgtttc	gtaaaccagc	tgggcgtttc	ttcggtaagg	360
gcggtatata	catcttcgcg	aagttcttcg	gttcattctg	cttgccatct	cgggtgaagt	420
cttcaccggc	aatatcgctc	aatcatcgag	acgatgaacg	aagccttgca	gaagtaagcg	480
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cgtgggcata	atcgttgtac	gaggtggcca	gatcgtacac	cgttattaag	cctgattcgt	600
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gagcgaagcg	gcggcgaaca	aaccggcgga	agcggcgggc	tctaattgtcc	gtaccacact	2160
ccctcgaggt	ccggccttgg	acttcggggg	agtgatccga	acaaattcac	acagtatata	2220
tatgccgctc	tatagaatca	cagtcagacg	gagaaaaact	ccaatggcat	actactcgaa	2280
tccggtatga	gtgtcgaagt	gctagcaaat	acttctacaa	tcctctgacc		2330

(2) INFORMATION FOR SEQ ID NO:925

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2384 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2384
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

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ccttgttcga tgtagcggta gtacatatcg gtgaaagtct ggcaagtgcc ggattttccc      60
gctccttttc ttcttcgggc tttctcttgc gaattataacc atgggtgctg atttttggat      120
tatgtggcgt ttagaggccg atttagacat aatatacctgc cggagggcgt ccaccaagct      180
gctggctcct atgcggaata tgccggcgta agccattctt tgcccaaaag cgtttcgatc      240
agacatagta tttcacagca tcttcagttg tgcgaatgcc tccggacagt ttgaaccacg      300
tacttcgcca aaaagtccgt agtactgtt cagcaccttg cactcgtata ggctgcttca      360
aggctcgctc cggggtagcc tttgctgtg gagtctttac aaaatgtgca ccgcagaaaa      420
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cagccactga cgctggccac tttcactttt cggctgtgag cgtttctctc acggtggaga      720
cgaagttggg gtatagcaga tcgccgctac ggatggaatc gtgggatctg tgtcctcgaa      780
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tgttttcacg tgaaactttc ggtatccttt ttgctcggtt tccccatttt gaaaacaacg      2340
caggctgcca ccgactcgta ccctgtatat tcgagttgtc gaag      2384

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(2) INFORMATION FOR SEQ ID NO:926

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 7497 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...7497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

accatttcg	atttgccaa	aatctacga	aaggctgtac	agttccccgt	ggtggttcta	60
tcacgattat	cgctgtgacc	actctttccg	gaggagactt	actcacgccg	tgccggacaa	120
caccggttat	attaccgaag	gtcagcttat	ctccgtcgcg	acagcaacgt	aggtaagggt	180
atcgtagacc	cgttccaagc	ctctctcggt	tgaagcagct	cgttatcggt	aagaagactc	240
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ccaatgacta	ctctcgctcag	ctcttgccca	taacgtaaac	gtgaatacga	cagagatgct	420
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cagcttgtgg	cacttatttg	aagaaataat	aaccttgtgc	tacaatggct	attaagttta	540
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tcgattactc tgcgatgagt ttgtgcacaa ctccgtggct acaaccgga caatagt

7497

(2) INFORMATION FOR SEQ ID NO:927

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2500 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2500

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

gctcaagacc	cctcgaatgg	catattcggg	cagcttggtg	ttgtccacat	gtccacatac	60
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ccgaaacggc	aatccatttc	tcgtctattc	attatatattt	tgtactgttt	tacattttga	360
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(2) INFORMATION FOR SEQ ID NO:928

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4439 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4439

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

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ttccgggaag	ggcaccctaa	gcgaagaact	gatccgcgat	atggattccg	gcataatttca	4140
accggagagt	tgcttcgtgc	cgaacaaaag	ctcagaccga	actgggcca	gcagcagccg	4200
gctacatcaa	cgaggacacc	tcgtacctga	cagcctgatc	gtggacatga	tggaaaagct	4260
catagcactt	tggtcgatac	cgaggggatt	atcttcgacg	gatttccacg	tacattcccc	4320
aagcagaagc	catggagacg	atgctcgcac	atcatggatg	gaggtggaca	tagtgctgaa	4380
tctgcaaagt	acccgaggaa	atgctcatcg	acgcctcctg	aacagaggaa	aggtcagtg	4439

(2) INFORMATION FOR SEQ ID NO:929

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 779 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...779

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

caagtaaacg	aaacgggtcgg	gatcgagaac	ctgattttccg	tgcccttacac	acaggatcgg	60
aacttgcatc	caacctcaat	tctcacatca	aggccaatcg	atctccctct	tcgaggcccg	120
aaccgtgtcg	tccatcacac	aacaagaggt	atatcccgtg	tggaagtgc	ttccggagaa	180
gtcttcacgg	ctccggtctt	atcatggcta	cgggtgcttc	atggcgcaag	ctcgggtgtac	240
ccggcagaaa	gaatatacgg	gtaatgggtg	agcctactgc	gctcactgcg	atggcctttc	300
ttcaaaggca	agcgtgtggc	cgtggtcggt	ggaggcaact	ccgtctggaa	gctgccatcg	360
atttgccggg	tatatgagag	catgtcactg	tatagagttt	ctggatgtgc	tcagggtctga	420
tgaggtgctt	caaaagaaag	ccgtgaaacg	gncaatatcg	acatcctcct	cagtactgct	480
accaaagaaa	catgggcaac	ggacagaaag	tggagggaat	actgcttacc	gatcgcaacc	540
gggagaggaa	aagcaaatacg	cactcagtg	cgtattcgta	cagatcggct	tgccgccaat	600
acatcccttg	tgaagatttt	ggtggaaaca	aacagccagg	cgaagtactc	atcgatactt	660
catgccgtac	caatacgccc	ggcataatgc	tgcagggtgac	tgtaccactg	tgccctacaa	720

acagatagtc attgcatggg cgaaggagcc aaagctgctc tttctgcttt ccgaggatc

779

(2) INFORMATION FOR SEQ ID NO:930

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 409 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...409

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

aacatttacc	tcaactgcaa	cagtggattg	ttctgtctat	atatggagga	tactaatatt	60
tctcacaaca	ttagaaattg	caaaaactta	taacctcgaa	tactaacccc	taaaagagta	120
aaaagatgaa	aaagttatcg	ttacagatat	tggaactattt	ttcgctgctg	ctgttctgat	180
ggtatttctg	acagggggcga	aaaccgggtt	gacttggagg	acattccgca	agaagcggaa	240
atccgacacg	ctcggccata	ggcgagacgg	ataacggcag	agaatacctg	ggcctaattt	300
ttacctgaca	agttcgggatg	aagtggtttc	ggacagtcga	tccgagcaga	aaggaaaatg	360
ctggcccgtg	catttaacat	tcagaccggt	cttgggagca	attgcttag		409

(2) INFORMATION FOR SEQ ID NO:931

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2140 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2140

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

gcaaagccga	tagccacca	taagatggct	accgacagat	aaattatttt	ttcttcatcg	60
tggcgaatta	tatttctggt	gcaaataagt	cgtattagaa	gtgatccgaa	ccaacccgta	120
tatgatacgt	ccgggtgatg	tcggggattg	aatgccaatg	ctttgggttt	ataatcgaac	180
aggttctccg	caccgaatgg	agcgtatagt	tccgatagaa	atgattttca	atatccaaac	240
gacagtcgta	taaccocggat	acgttatttc	ctcaaacaac	tcgtcggagt	tcatcgccct	300
gttttcagat	cggaaaggaa	gcgcggtggag	aagtggagg	ctatctgtaa	ttcttcgaaa	360
aattatgtcc	ataagagaga	gtggcagtag	ctcatgagg	cgggtgtttg	agagcttcat	420
ctcagttccg	gccttatcgg	tgccctccat	cgcataaag	tgtagggaata	tgaagctcga	480
aaaccaaaagc	gtaaggcagt	accacattcg	cttgtccttc	aaagccgaat	attctcattc	540
tttcgatacg	ttggtgtaga	tcaaattctgt	gcctttgtag	gtgaaatcat	ccgattgcga	600

acatgattga	agaagacatt	ccccatcagt	gtaagctgtt	ccagtgagct	tctgccgagt	660
atgagagcat	gcgactcttc	tccgggtcaa	atccggattg	ccgtaaataa	agaaagcacc	720
atgattgaag	aaaaatacat	ttcctgcaaa	gagggggcac	gatacccttc	cgcgtaggac	780
aagcattggg	gacatggctg	cacttgtaca	tggcagacag	gcgcgatgta	tagacaagcc	840
gaatccggag	tgcttgtcca	agcgccctcc	atagctcaat	acagtttggg	ggtaacttta	900
tatatgtact	gtccgtatag	gattttgttg	tcacggactt	ttccccggg	tcgttcggag	960
aggaaagacg	gggcatgct	cattatcatg	gatatactcc	agaccacat	tgagaagggtg	1020
gacttcagca	gattgagatt	gtattgtgct	cgaaatggg	gcatatcctc	atcgaaaagg	1080
gaagtttctt	ttggttctca	gtcttgatca	gacaggatc	acggctaatt	tgctgtaatg	1140
ataagagacg	tccagatccg	aagtctcgct	gatacgagct	tggcaccggc	tttgacatcg	1200
taggagttgt	acagaaaatc	gatctatccg	tccagtgtctg	cttacgcaga	ttcaccagtc	1260
cggtaagggt	gaagataagt	tttccgtcgg	agagattgta	aacttctgat	ttatattcca	1320
tgtgtattgc	ctgcaacatt	cagttcctgc	tcgaactgat	cggccaaaat	atacttttgt	1380
ctgctctata	ttgtacgccg	gactgactgg	tgaagatccc	agtttctact	ctgctgccac	1440
atcgattttc	tgtccgctcg	gactatcgta	cgagccgaag	cagatacgcg	aaaaggatcc	1500
ttggctgtac	gggtgatgaa	ttgataacac	ctccgatggc	attagatccg	tacaaagcag	1560
aggaagctca	cgaagcactt	cgattcgctc	gatgtcatcc	ggattgattc	gttcgaatct	1620
attccactgg	tagatcccg	tgaaatcaat	tcgccatcga	cgaggagaga	atagaacttt	1680
cgtcaaattcc	ctgagcattg	agctgatctc	tggaaacatgc	ttggtaaact	cgatcccggg	1740
aagaatatac	tgcagtacgt	caataaagaa	gatggggcta	tagctttgat	atctttggcc	1800
ttgaacacct	ttgggggaca	ggtacatctt	taagcagacg	ggctgtacgg	ctaccggtca	1860
ccctatatcc	tcaagtgcga	tattgccgga	tacgatgggtg	tcggtagggt	ggccggaggg	1920
ttggccgcac	gggagtatat	acttatacta	aagaaaagca	gccgatgagg	gcctgctttg	1980
ttactacact	tttcatattt	ccctcttaat	tatttaacgg	ggtatgtata	agtgaagggtg	2040
atgactcctt	ttttgagtct	gcacctcgat	agtcagtga	ctgcactttg	gcaatattac	2100
catcagccca	cgaacgaaga	agactctttt	gcggggatcc			2140

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 862 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...862

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

ttggttccgt	ttttcccgaa	aagcggtttg	agtttttccc	gaaaaatggg	cgtaattttg	60
tttcttctat	tcttctctct	ttcggacggg	ttcaggagga	gaggaagatc	tttactcctt	120
gcttttgatt	ctatcgatct	cgattatgga	ttttcgttct	tttacattgt	attctatata	180
aataagaaat	gctatcttgc	ggtcgatatt	cctatgtatg	gtcataaaaag	tgacccgaat	240
atgtgggtcca	ccatacgggg	ctaacaagtt	tagtagaaaag	aaagtaattg	acgtatcgta	300
gacattcagg	gacagcagat	gaaggtagaa	caaggccgtc	ggcgttcgtg	catcacatca	360
aagatgtaga	gagtgggtgca	agcgtagaat	tcacaagggt	ctcctcgtcg	ataataatgg	420
tgctatcacc	gtgggttctc	cctggtagaa	ggcgctaagg	tggtatgtga	agtattgact	480
cctcttgatg	aggggataag	gtgctgatct	tccacaagaa	gagaagaaaa	ggataccgca	540
gctgaatggc	catcgccagc	agtttacgga	aattctgggtg	aaagaagtgt	tgcataatca	600
aatcccaaaa	cagaaacaca	atcatggcac	ataaaaagggt	gtaggtagtt	ccaagaacgg	660
tcgtgaatcg	gaaagcaaac	gtcttgctg	aaagtttatg	gtggagaaat	ggctaaggcc	720
ggcaacatat	tggttgtcag	cgtggcaccg	ttcaccaccc	ggtgaaaacg	taggtatcgg	780
taggatcata	ctttgtatgc	actgaagtcg	gcgtggtagt	attactcgca	gaaacgaccg	840
tcatacgttc	gatcagaccg	at				862

(2) INFORMATION FOR SEQ ID NO:933

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 759 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...759

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

tttgatttga	ttcatgaaaa	ttagtcagat	ttgtcatgca	aatcttatga	acaattcaat	60
agcttggttt	tcttccttag	tttcaaact	attaggataa	gaaagcatag	taatttagaa	120
tcatgtaggt	cttttggaac	tacaatttct	tttttatatc	tgtactcatt	ctttattatt	180
ttacataaat	tgctttacaa	aaagcaccgc	atattctcac	cgggtgttaa	ctacaaaatt	240
ctcaatgtag	atagcataaa	atctattcat	aatggagttt	ttgtggtaaa	ggtaggaatt	300
acaacttatt	tcttttggtt	tccttttctt	tcttttcaga	gaaatgagta	ccatgttgaa	360
ctaactgtat	gttaaaaagct	agtgaagcct	aaatacatga	gtttgggata	ggaaaagtct	420
tataaaaagt	agtaatcaca	gaatattttg	catgcttgat	gagtttagca	agaattttga	480
tgcggaatg	aacatcattc	gcttcctacc	ggtttcccaa	aggctcgag	acgtcgtaag	540
tctcacttag	tgacagttag	attatgacta	ttttgccggt	gtttcattcg	gaacctttgc	600
taatttcaaa	catgattatt	tgcatttcat	caaagtgatt	tgcactccga	gttccttcg	660
gctgtgtcgt	acaatcgctt	tgtggacttg	aaagccgcgt	gttctttcaa	actcatgctc	720
tttcttaaac	tctatccctt	tgggaaaaat	gtaccgggc			759

(2) INFORMATION FOR SEQ ID NO:934

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 554 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...554

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

cggtgtgtgtg	gcaagagcac	gtgatgctta	tgctaaagga	gatacaattt	ttttaacagc	60
aagaattaca	cactggggaa	tgaacgtaat	cttggggagt	agtaaaaaag	atgcctggca	120
tgggaagtgt	gaccagacag	gaaatattca	tatcaaggaa	agaaaatttg	aaaggtcttg	180
gttgacgggc	aggatattta	tcctcttctt	ccggtgttgc	catgaatacg	cttcctcctg	240
attttccaat	tcgatagaat	tgctttcgaa	ttatacggat	ggtgatattg	cccagctttc	300
aaggcataag	aacaatttag	cctcaatctg	aagtccaata	aaaagttgct	ttaagcggtt	360
cttttgaagg	cggangcggc	ctgaaagaca	aattatcagc	aaagcatctt	tgattacagt	420


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cttaccaaaa atatctgcca gaccatcatt aacgcccaata atacaggtga ggctgttttt 480
tcgattcaag ttatatgtcg aatatcatag actttgaatc gatccgaagt ggagcttcac 540
gcagacatct ttaa                                     554

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(2) INFORMATION FOR SEQ ID NO:935

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3501 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc feature
 - (B) LOCATION 1...3501

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

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cctaactata ccacaaggag catagcggta ttccgtagaa cgtcagttca cgtaagaaaa 60
caccaatgaa tttgtttttt gattaggggt aaacgcccaa gaacgtgggc attatgcttg 120
aaaaagtagc gaattatttg tatctttacag ttgataatca ataagatacg aacgaacaaa 180
acgctacttt atgaagcaaa tatagttgat gttttttgca tcatagatga tttctccaag 240
cttttgatga agcaatcaag aaaaagaccc tcgaagaggc agacaaaaaa cgcagaatag 300
aaagttaaag atgtcggaca gtgagggtcat gaccatcctg atctgtttca tctgtcaaga 360
taccgagatt tgaaagcttt ttatcttcaa taatcaccta ttcttgtcga tccgagttcc 420
cacatcttgt ctcttataat cctttgtgga gctgcaaagc aggggtgggtt tcaagctgat 480
agcattttctc atatgtgttg tttgggtcaa tgtacaggca tctctttcat cgattccacc 540
cactgaaggc ttgtcataatc aaacgagctc atgggcatag gacaatgagg gatgggtcca 600
aaaaggcaaa agcaccatgg gttggtttta tggattcaac tgcatattgt tatcaacgac 660
aggggtgaaa tcatcaacta tcaaatacac cgggcaattg tgatgacaga gaacctctga 720
aagacggaac attcacaaga atcttttttg caaactcatt gccgatagag gctacatttc 780
ccaaaccttt ttgaccggct ctttgtcgat gacatccaca tgataacca aataaaaaaga 840
acatgaagaa ctccctgatg catctatatg acaaagtttt atgagaaaga gagccctgtt 900
cgaaaacggtc aatgatatgc tcaaaaatgt cgtcagatag agcacacgag acatcgaggt 960
gccacaatt ttgtcaccaa ctgatctccg gtatcatcgc ttacaacatc ctgcctaaaa 1020
agcctgaacc aatattgaaa tcatcagaaa ccctaacttt cctattttccg cttagatcaa 1080
ctgacgtctt cttaatagat gaggtggact ctttgtgttc ctttttcgtc ttattgcatg 1140
tttatctatc tctcttttgg cttcaaaaag atacgatacc tatctgtagg tatattttatc 1200
cttgtttttc ttgttttatt gagtgtagta cctatttttg tgatgagagt cggactctcg 1260
tcatgtcgat taaaagaaaa cagaaatgaa taagagtatt aaaggctcaa agacagaaaa 1320
gcattgctca tggcatttgc cggagaatcg caagctcggt cgcgctatac ttctttgcaa 1380
gtgttgccaa gaaagagggt tatgaacaaa ttgccggagt ttcatggaaa ccgctgagca 1440
ggaaaaagag catgccaaaa ggtttttctc ttcttggaag gcggcatgct tgagataacg 1500
gcttcttttc ctgcaggaaa atcggttcca cggctgagaa cttgcgcgcg gcggctgccg 1560
gtgaaaataa gagtggacag atctctatcc ggcttttgcg gaaacagccg aagaagagga 1620
tttaaggaga ttgcagccgt atttcgtcag atagcaaagg tggaaagcag catgaacgtc 1680
gctatctggc tcttttggct catgtggaag atggacggtc ttcgagcgaa cggaagaaat 1740
cgcattggcaa tgtcgcaatt gcggtatgtc attacttcca agaaagctcc gaagctatgt 1800
cccgcttgcg ctctccgcag gcttacttcg agccaatgaa aacgaattac tgaggatcac 1860
atcatataga aacgaagtaa ttatctgatc tcatgttttt gaaggaggca cgctcgggag 1920
agtcgtgcct ctttttttgc ctgttattcc ctgcgaaaag gtgtgcgtca ttttgttttt 1980
tcgaaccaag tataagagac ggtcctgtaa gtgggactct cacggttttt ccggacatac 2040
agccggattg aaaaagtcaa tccgatgaaa aaaccgtact tttggccgaa attacttaat 2100
aaccaaaaag taacctaaaga tcttatgga attgaaaaga tttttatcac ttggtctctg 2160
cttgtgggat tcattccgat gaagctttct gcccaacagg ctcagcactc cctacagatc 2220
cggctgttcg tgtcggtaag ttggacaacg gattacttat ttcattccgtc acaacgagaa 2280
cccgaagat cgtgcggatt tcttatcgca caaaaggtag gttctattct tgaagaagat 2340
agccagtcgg gttggctcac ttcttggaac acatggcttt caacggtacg aagaacttcc 2400

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cggtaagaac	ttgatcaact	atctcgaaac	gatcgggtgta	cgtttcgggtc	gaacctgaac	2460
gcttctaccg	gattcgacaa	gacggaatat	acgataatga	tgtgccgact	acacgtcagg	2520
gaatcatcga	ctcctgcttg	cttatcctca	tgattggagt	aacaatatta	ccctcgacgg	2580
gcatgagatc	gacgagggcg	cggtgtgata	caggaagagt	ggcgtgctcg	tcgcgatgcc	2640
aaccttgtat	gttcgaggct	atacttgcca	aggctatgcc	gggtaataaa	tatgcgaacg	2700
catgcccata	ggtctgatgg	acgtcgtgct	caacttcaag	catgtgagct	gcgcaactat	2760
tataagaaat	ggtatcgccc	cgacctgcaa	ggttggtgat	cgtgggagat	atcgatgtgg	2820
actatgtgga	gaacaagatc	aagaactcct	caaggacgtt	cctgctcccc	tgaatccagc	2880
agagcgtatc	ttacgcgggt	agaggacaac	gatgagccta	tcgtagccat	tgctaccgat	2940
ctgaggctac	taccacgcag	ctctccatca	gcttcaagag	cgaccccacc	ctcaagaagt	3000
gcgaggatcg	atattcggac	ttgtggaaga	ctatatgaac	aggtgatcac	tacagccgtg	3060
aatgagcgtc	tgcccgagat	tactcacagc	ctaacgctcc	tttcctcagt	gcaggagctt	3120
tcttctctaa	cttcattaca	tcacccagac	taaggacgca	ttcaattttg	ttgcctcggg	3180
tcgtgggggtg	aagcggagaa	agcgatgaac	gcattggtgg	cagagataga	aagctccgtc	3240
agttcggtat	tcaccaagg	cgaatacga	tcgtgcacgg	cncaatgtgc	tcaagcgata	3300
cgagaatcaa	tacaacgaaa	gagacaagcg	tagaacaatg	cttatgcaa	tgaatactcc	3360
acctacttca	ccgatggcgg	catatcccgg	gtattgaggt	ggaatatcag	acggtgaatg	3420
cttttgctcc	caggttcctc	tggaagcatt	caatcaggct	attgcccaaa	tgatcgatcg	3480
gtgaagaatg	ctgtcggtac	c				3501

(2) INFORMATION FOR SEQ ID NO:936

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 971 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...971

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

ggaggctttt	tcgttgtagt	agggatttat	ctgttgttct	ttctgatcga	tacctttgtc	60
ggcatctgat	cagaagatat	atcctcggac	ggctggccga	gaggtactgg	aaattgtagc	120
ccgccatcaa	agaaaaaaag	aagaggagaa	gggccgacaa	ataagtagat	ctcaaaatga	180
ttgtcgcgca	aaccgaaata	gaaatagata	tgcgagcata	ttacgaactg	aagcgtcgtc	240
gagaccatgc	gataaggaag	cagaacgata	ccagaaggac	atctttcgct	gtttgatcat	300
gtacgcaaca	attatggcga	catgattttc	gaagaagttg	agaccatctg	atctatcctg	360
gcagccttgg	caataagata	cttcgcttcc	tctcggcaag	aagcagatct	cttcatccaa	420
gctaattgact	ccgacaggcc	gccgactctc	catctgatcg	agcagcttac	cgacttcggc	480
cgtectttgc	gatcagtgcc	ttgcttggct	ttgttaagcg	tagcatcggt	cgccgtttcg	540
caggcgtcga	taattttccc	tattctgtct	tttcgggtaa	ggaacattta	tgtcagcggc	600
tgacaaagcg	atataattgt	tgtctgcctg	aaacaatctc	catgaacaca	aaagaatatg	660
tgctggactt	tatcaaccgc	acgaacgtaa	ccttttcctt	accggcaatg	cgggcacagg	720
caaaacgacc	ctgctcgcca	tatagtccaa	cacacattca	aaaactgcat	agtagccgct	780
cccaggaat	agcagcgttg	aatgcgggtg	gggtgacgct	gcattcgctt	ttagcttcc	840
gccgggaaca	ttcattccgt	acgggctatc	tctcgaaaagt	gcacgggcgt	aaacttcctt	900
acgccaaactt	ctttttggaa	acagacacgt	agcatgcttc	gaagcgcaaa	ttgcttcgaa	960
acatggagnt	g					971

(2) INFORMATION FOR SEQ ID NO:937

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

atcttctata	cttgatatta	ttgattacct	cctattgtca	gataatcccc	tatagttgag	60
aattattatta	atgaaaatgt	tgaattctat	ggaatgaaat	atttcttgaa	gaaagaagct	120
acatcctaata	gaggaaggca	cctcattagg	acaaggtagc	caagatgtgt	attggaagga	180
gcaagaggaa	tatccttgcc	atacatagc	actcactctg	tgggtgagat	gagaacaatt	240
ctgacaggat	gttttatgtt	cctcagcatg	aaactaaagt	tggtaatcgg	aagtcaatat	300
gaccttcagg	cattttttgc	catttaatta	tctaacagag	gatttatttc	atcagcaaac	360
acttattttg	atacggcatt	ttttattaat	cgagttatga	tggtttcctt	gattatgcat	420
t						421

(2) INFORMATION FOR SEQ ID NO:938

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3048 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:938

ggcgcaagat	ggctgtacgt	ccgcgaagat	cgctcgtctga	cagccggttca	tttcgccata	60
tgcaactttg	attttgtcca	cgaaagggtt	tacctcttca	agtcacgctg	cgatttggtg	120
ccgaaaagct	tcgacatgaa	ttcgttgatc	ccatttatct	attgtatttt	ttgtagctgt	180
tatgatatgt	gcggagacct	gcgtaagagc	gaaagactcc	tttctcttct	tcccgaatag	240
tatgtcagag	agccacttcg	ggtaatggca	aggcacgagc	ctctgtcgga	ggactatgcg	300
gaggatatac	gccaaaggtg	gagctatctc	tgctgaagaa	atattcgctg	cactttttgt	360
ccttttatgc	cgggtaccac	caagataaaa	gggctgctac	agcattatag	cgtatttggt	420
tgtgatccga	attcgaggat	actcctcttc	tccttctatc	catcctcctt	gtaattgcaa	480
acatacatcc	cagattgccc	caatcggaac	gaacgaacaa	aacgattcgc	ttcttcgtta	540
ttgctcccga	acctatttcg	tgcgccggca	atgcaagtcg	tacaccgcca	tctgtcgggc	600
aaattctgcc	acttctgatt	gaagccgacg	catatcgcc	gtttcttttc	tgccagtttt	660
ttgtccagaa	tcaactgacc	atctgcta	ccaacaccca	ttgtccctgt	ccgtgcagag	720
ccatcaaata	catatgatca	aagcttttga	tcgcttttga	ctgaagtagc	gatgacgctt	780
atgggggaata	cgctttcttc	cgggatcgaa	ttattgaagt	ggcctgttcc	actagggcta	840
ttatgcagtt	tgccaagcca	atctttttgt	ccaaagctgt	gacaggcgag	caagttgagc	900
atccaagcga	gggtacgtgt	cgaccatctc	gcctgatgct	cactctgatg	tttggcaggg	960
tatcttcctg	cataataagt	agcgatagca	gattgggctg	tttggcaagt	tccaatcctc	1020

catactcgac	agtcggagag	ccaaagtcgt	gacttcttca	ttgatcggag	cagattgttg	1080
aaaagactga	tgttggaatg	actgaatttg	tgagaaaagg	caacgggtct	ccaccacag	1140
gcaaagattg	gggcgaggac	ataggagtcc	atacaaaactg	cttatttttag	aagagggaga	1200
gtcggccgag	gagttgaaact	tatcgtgtac	caagggaat	ctttgtagta	ggtagtcgta	1260
gcccacatcc	ccttcgatct	tcgagccaga	atgcaccatt	tccagactga	cctgcagcta	1320
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cgtagttcat	cgccgatagt	gccggaagtg	agcttgagag	ggacagatgt	tcagatgtat	1440
aattgcctaa	gaagtttttg	tcttccaaaa	ggataccgac	ttgttctttt	ctctgtcgaa	1500
tacagtactg	cctgtaatat	gtgacgatta	ggataggtgc	cggatatatat	acctgcaata	1560
gccgatgctc	gtctacccca	tcgaatccga	agcttacggt	gctaaaaaca	agtcctatctg	1620
cagcagatga	ttaaatccac	ctgtgccata	ttgtgagcgg	caaaacagag	gagatcacct	1680
ctcaactggt	caatggtaat	taccaccacc	agcttggatg	aaccgattgc	ccctgtactg	1740
taacattccc	tatagtcaat	acggcaaaaag	ggctcgttaca	agtcgtttca	ccgaacgttc	1800
tttctccatc	tattaccaat	atccagcgag	cggaaagcaa	ccatagagca	atgccggcca	1860
caagagcggg	agcactactt	gttgccggcaa	aaaccatatt	gccaaaccga	taaacttagc	1920
tctgcaaagt	taataaaaatg	atagacaaaag	cctgctcggg	aaagagcggg	accacagtca	1980
gaggcaaccc	gataagcaga	tgaaggggag	aagcaggaaa	agattgtaat	tcgggttggt	2040
atgccgatgt	tctgagaaaa	tgacagaatg	aaaataaacac	atcccataaa	cccataatg	2100
gctaatagat	agagtcatat	acatagcata	tatccttgcg	acgaacatcc	caaacactac	2160
tgcaatagaa	actatcagca	aagctataga	agccaataaaa	ggtgtggcca	gccctcctcc	2220
gcagggtcca	tactggccgg	cttagccgga	aaccctcttt	ggtatccctg	atgagtggcg	2280
ttgatcgacc	attgggatag	agtgagtggt	acgtggtagc	agatccaaca	ttctattcgg	2340
caggaataac	tgctctccgg	attggcatag	gtatctgttt	tcgccccgag	agccagatcg	2400
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ctcctcaccc	tcattgagggg	tttgcaaggt	agctcctgtg	tttcttttat	gatctcgata	2520
aggcgggtag	cacagttgtc	ataaaaagaat	tatagcggta	tcgtttattc	tcggggcgaa	2580
tattccatgc	caaataactct	cagctttttc	gatctcttcc	tgtgtgagat	tcaatactaa	2640
ttccacattc	ctcttccgct	ccgaaggat	tcttccacat	aataggatgt	ataaaagctt	2700
caacggtaat	aatccgtttc	gcctcgtaca	aatcgaagca	tgaattaggt	tcgttataat	2760
cgaacatgcc	ataattgtaa	gcaatatccg	tccttgtagc	ggattgagaa	tcctgaatgc	2820
gacatgaccg	tagcgagtg	atccgcttct	gtagaaggag	aagagatcaa	gaggctcatc	2880
tgcagacctt	gtctttcgtc	tccgtgctaa	ctgtctgtgc	attggccaga	agtcgctgg	2940
caataagaca	atcaagatgg	cggagaatag	tccggccgat	actttcagtt	gcttagatat	3000
ttttttgcc	ttgtgaatta	ccaatatgag	agtactttta	ttattttt		3048

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3730 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3730

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

acaagcatga	ggctcagcaa	ccccggcaac	tggacattaa	ttcactcaat	aatcgacagc	60
tatggactat	atcaatgcaa	taggcggcg	taaggctgtg	tagctcgtgt	ttatctgagc	120
gaaggctccg	gcaagatcgt	gatcaacagc	gcgaaatcga	acagtatttc	ccgtcttcaa	180
tcttcagta	tatcgtaagc	agccacttct	caagctcgat	gttgctgcga	aatacgatat	240
caagacaatc	tgctgtggagg	tggtttcaaa	ggtcagagcg	aggctgctcg	cttgctatcg	300
cccgtgcact	ggtcaagatc	aatccggacg	acaaacccgc	tttcgttcag	aaggcttcat	360
cactcgcgat	cctcgctggg	tagaacgtaa	gaaccgggac	gtcccaaagc	tcgcaagaga	420
ttccaattca	gtaagcgtaa	agtccttaga	ggatatttct	cgcgtttagt	atctaaatcc	480
atcggattgc	ttcgggggta	attcatttct	tttcgagtct	gctctaccgg	tttgattga	540

aacagtaatc	attacaaaga	acgtaaacga	aaatgtcaag	aatttccttg	atcaattatt	600
ggaagccggt	gctcacttcg	gacacctcaa	gagaaagggg	atccggctat	ggctccgtat	660
atctttatgg	agcgcaacga	tattcaatta	tcgacctgca	caaaacagtt	gctaaagtag	720
acgaagcagc	cgaagtatta	agggtatggc	caaaaatggc	aagaagattc	tcttcgttgc	780
cacgagaagc	aggccaaaga	acctatcgcc	gaattggcca	aatcagtgga	aatccctatg	840
tggtagaacg	ctggccgggc	ggtagtctca	ccaacttccc	cacatccgca	aggcggtgaa	900
gaagatgacc	cagattgaca	aaatgacggc	tacggcacat	ttgataatct	ttccaagcgc	960
gaaaagctgc	aaatcactcg	caacgtgcca	aattggagaa	gacgctcggg	tctatcgccg	1020
atatgaacct	ctgccttctg	ccctgttctg	ggtaggacgt	atgaaagagc	acatcgccct	1080
cgcgaggcca	accgtcttgg	catccccgta	ttcgcaatgg	tggatacaac	agcgatccct	1140
cgcttatcga	ctatgtgatc	ccctctaacg	atgatgcctg	aaggctatcg	aactgactcg	1200
aggcacgatg	tgccaggcta	tcaacaaggg	ctgatggagc	gtaaggccga	aaagcccgaa	1260
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caacaacgac	ttcgagaaag	caatggaaat	cattcgcaag	aagggaagc	agtagctgcc	1680
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ccgctatcgt	agctctcaag	tgcggacttg	atcttcgtgg	aaagaatgcc	gaatttatcg	1800
agcttacaca	aaaatcctca	atacttgctt	atggacaaga	agccggccaa	caaagaagag	1860
ctctcgccct	tcctctggct	gacggacgca	ccatagccga	ccacattacc	gtcgtatcgg	1920
tgtgacgggt	gagaagatgg	aattgggtgc	ttacgaatac	tcagcggtgc	ctccagcatt	1980
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cgagcagtcg	atcagcacat	catcgatcag	gaattgcaga	tcgctcgaga	aaaggcctcg	2160
aagccggcaa	gccggagaat	ctgctggatc	gtatcgctca	aggtgtttgc	agaagtacta	2220
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agagccacgc	gacagatctt	tttggtcgga	aaacgtcatt	gttcgcccgg	aaatctgtat	2580
ttcgggtctg	caatgcaatt	gtccggcggt	caaacttgca	aaattcatgg	tcttgaaatt	2640
ctatacgtga	tctccataat	tatctttgtt	cgaggaaaag	atacaggctc	gaccaactca	2700
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gaagccattc	gccaaactcg	acagggcatt	aacaagggat	gccggctcag	acgctgctcg	2820
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gacccttgct	cgagtcacaa	caagaccttg	gcagcacagc	tatacggaga	gttcaaagcc	2940
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ctacctcccc	gtcacagaca	cctatatcga	aaaggacagg	ccatcaacgc	ggagatcgaa	3060
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gctccgtatc	ctgtcttacg	gtatggccaa	tcttgaagct	ttttccgaaa	aggtgatcag	3180
cctgccacgg	gacaaaaggc	agacagggat	catttttatc	gcctgctggg	agaggctact	3240
acacgaacaa	taaagtagag	ttcgagagcg	gcaacttccg	tgtaaaggcg	acagcgtgga	3300
catattcccc	gccgtagaag	gttatgacgg	cgggcataca	gggtggagtt	ttgggatgga	3360
gaggtcgagc	ggctgagtag	ctcgatccgc	gaacgggacg	ggaatacggc	ctgctgtcgg	3420
agctgaagat	tatccggcca	atctcttctg	gacgactaag	gagcaggtgg	atcgggcaga	3480
gggaaaatcg	atgtggatct	gggcgcacag	gtcgattttc	tgaaagaatc	ggcaaaccat	3540
atgaagccaa	acgcttgtag	gagcgggtca	cgtatgattg	gaaatgatcc	gtgagttggg	3600
ttattgttcc	ggtagtagag	aactatcgcg	ctacttcgac	ggcccgtgac	gcgggcgaac	3660
gtcctttctg	tctgtggatt	atttcccggg	ggatttctct	ttggtcatag	acgaaagcca	3720
tgtagcagac						3730

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3104 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3104

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

cagcctctct	tataaagtgg	atcatacgcc	caaaagcgcg	tatgatccga	gtagttttta	60
gttttctgaa	agcttttctt	tcaaagcggc	cagctcgcga	ggtctccgag	agtggctttc	120
tctacagcct	gtgcaggatt	ggcagctcgg	cagcagcttc	tttctgagcc	gctttggctt	180
cagccttacg	ctctgcttgg	cttcacgctg	agccattttc	tgctcatctt	cgaatacacg	240
gctatagata	caatgattcg	cttggcatcc	ttattgaact	caataaacctt	gaaagtaact	300
tctcttcgag	tacagcctgt	gagccatctt	ccttcacccat	gtgttcggag	tggcaaaacc	360
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tcgtggatag	atcctacagt	gataccgtct	cgaatacatc	ccaaggattc	tcttccaact	480
gtttgtgacc	aagctgagac	gacggttttc	cttgctgata	tcgattacct	gaacttcgaa	540
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ggatacggct	tccatttcgt	cgcctacatg	caggaagtc	tgagcagaac	gcagtgtctg	840
gtccatgaca	tttcgcttac	gtggataaga	ccctcaacgc	ccgtgcaatc	tcaacgaaag	900
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gtcgagagca	tccaaggat	aggcatcagc	tgtttgagtc	cgagagcgat	acgcttgcca	1020
tcttcatcaa	gtcgaggata	acgacattga	tcttctgata	cagctgtacg	atttcttcgg	1080
atgagccaca	cgaccccatg	aaaggtcagt	gatattggata	agaccatcac	tccaccgagg	1140
tcgataaata	ctccgtaaga	agtaatatct	ttgacgtacc	ttcgagtacc	tgcccttttt	1200
cgagcttgcc	gatgatttct	ttctttgttg	ttcgagctct	gcttcgatga	gcaccttggt	1260
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attggtcata	tctctcaaaa	gcacggcaaa	gttacaataa	cttttcgtta	cctcttcatt	1920
tgatcaacc	tgcagattcc	ccccaccggt	gcaacattaa	caagcgacct	caggattgac	1980
tccaagagt	caacgaaat	caggaaacgc	actatttgaa	attacaatgt	tgcaatatcg	2040
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acctcctaag	cctcatTTTT	tcagtacacg	tcacgtcagt	cgtcagtata	aaaaaggacg	2160
cgtgcctttc	ctgaaaaggc	gcgcgagaat	tttcccgttt	tggcggagat	gtttttcgtt	2220
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ggggtgataa	gccggaattt	ttggcgcgta	aactaaaagc	gaattatgat	gagataaggg	2340
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tgcagggttga	tcaccgtttt	cttgccggtg	cgatccgtga	gcagcgataa	tctttcaagc	2460
gcgttacata	catacgttac	ttccccagtt	tcttattccg	aaataaccgg	catagccgaa	2520
tagacctcca	ttgccgaatg	tgcgaagcag	cttttgagat	cgtccttgcc	gatgggcact	2580
atttccattt	ccttccttcg	aagaccaatt	gcccccatat	ttgcttgacg	attatttgtt	2640
cctctgcacc	tccgtatagc	gtggaatgat	agctatgctc	catcctacag	caggagaatg	2700
ataaccaca	aggcagctac	caaaaccac	atgcccgttg	accagccggt	attagagcaa	2760
agactatcaa	taaaataatg	aggatagaga	agatcgctgc	cggatactga	ggggatagta	2820
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cttttcgctt	ccagagacga	accaaacgat	aaataatcag	gccgaggaca	caatacccg	3000
tatggctgtg	aggatattct	gtatcatatc	tatgggctat	acggttcaga	agaaaagtat	3060
tcctatccgg	tagattagga	atgataacgc	gggggtcttc	taga		3104

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 616 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

cgccaaaccg	gtcataaaga	agaggaagaa	agtgatccag	aagctttgtc	acctttctcc	60
ttgcgcacatca	ggtggaaaga	aataccgatc	agccccaaag	caacggaagc	atgtagtaca	120
cattgtgtcc	gcgattcttg	gtcataagtc	cggcatgtca	tccgtaggac	cgataagaat	180
cttgtcaatg	aagggaatacc	cgtcacggca	ttgccacgca	atagtcctcc	gtcgccttgc	240
aggtcttctg	acggccggaa	aaattccaaa	ggaaataacg	ccagtacata	taatgacctg	300
ataattgaag	aagaatttca	ggttctctcc	gaatgtaggc	atatggatc	cgtttcggat	360
cgccccatcc	agatattata	gctttgcgga	tgccatcggt	agtggaatag	acacgtggga	420
aaagcatcat	ggaaccatct	cataatcgta	ttcgcgttgt	gtatagagcg	tttcgtaacg	480
atccttatct	taggatttac	cttggcgcaa	ggccctgtta	cttctgccat	ccttcaacca	540
caggttgga	tgcaaaggaa	ggcccgtaga	tcacgggtac	ttcgtatatt	cgcgagcaag	600
gtagctacaa	gccgaa					616

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4090 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4090

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

tcttgctccc	tgacgatgc	aggacgcgat	tgtagctga	ttctgctcca	tcaatgcgct	60
aactatcagc	tgtttgcaac	tattttatag	gactttcatg	aagtcttttg	ccgcagagct	120
gattcttaag	tgtttttcag	attacttagg	tttgagaga	gatcgcatga	agctctcctt	180
tcttcgtcaa	atcaatcttg	tgtctgtctt	gatcgatatg	agggggtgga	aggggtattg	240
tgcaaagtct	cgggtctgtaa	aatcaattct	atcaactcga	cacccatcaa	acgaatgcaa	300
tgaaatatgc	acttcatccc	ctgtatgaat	caggttttat	tcacttcttt	attgaaaagc	360
aagaatcaaa	attcgatcgc	cgtctctact	tgtagtcaa	gttcttcttt	ctacggcaat	420
ggacaatcga	tcataagaa	aaggctgctt	gaaaatgagt	cggaatattt	tagcaggtag	480
ctctttcttt	ttcttgcatg	ccgaaaatga	cagaggttgg	caagcaaaac	ccgtgcgacc	540
tgtaaatata	atacttacct	ttgcaatagt	gacattaaaa	acaataaaca	cagaaacaaa	600
tagcaaatct	gaaatgaaag	aatttttcaa	aatgttttcg	cctcgatcct	cgggggtata	660
acggcaggaa	tcattctgtt	ctgtattttc	tatttatctt	tttcggcatc	gtagccggtg	720

ttgcctccaa	ggcaaggag	gaaccattcc	gaagatcgaa	gcaaactcca	tcctacatat	780
agacattctt	ctttccctga	gatcgatatcg	gccaatccct	ggagcatgct	cacggc aaa	840
acgagtcggt	atcgctctca	caggcagtcg	aagccatcgg	ccagccaaaa	ataatcccaa	900
cataaccggt	atcttctctg	atctggacaa	ctttccgtcg	gtatggcatc	ggcagaggaa	960
ttgcgtcgcg	cggttcagga	ttcaagatgt	cgggcaagtt	cgtcgtatcc	tatgccgaca	1020
gatacaccca	aagggttact	acctctccag	tattgcagac	aaactctacc	tcaatccgaa	1080
ggaatgttgg	ggcttatcgg	gattgcgacc	caaacaatgt	tctacaagat	gccctcgaca	1140
aattcggcgt	gaagatggag	atcttcaagg	taggcactac	aaggcagccg	tagagccatt	1200
catgctcaac	aggatgagcg	atgccatcgc	gaacaaatca	ccacatacat	aaacgggctt	1260
tgggacaaga	tcaactccgat	attgcagagt	cgcgcaagac	ggcaatggat	tccgtgaaaa	1320
tggttccgac	aaaggcgaaa	tggttcggtct	tgccgagaaa	gcggtggaga	tgagctcgtg	1380
gatgagctgg	cttaccgtac	cgatgtggag	aaagaactca	aaagatgtcc	caacgcggag	1440
agaaagatga	acttcggttc	gtatcgcttt	tcagggttctg	gccaatggcc	cgatgaacaa	1500
aacgaaaggc	agtcggatcc	cgttctcttt	gccgaagggtg	aaataacgga	agaaataata	1560
aagaagcctt	cgacactgac	ggtagctcca	tcacacaaga	actcgccaaa	gaaatcaggc	1620
agcagccgat	gacgatgata	tcaaagccgt	agtacttctg	gtcaatctcc	gggaggtagt	1680
gctttcactt	ccgaacagat	atggaagcag	gtagcgatct	caaggccaaa	aagcctatcg	1740
tggtctccat	gggcgacgta	gcagctcggg	cggtactac	atagcctgcg	cagccaaacag	1800
tatcgtggca	gagatacgac	tctgaccggc	tccatcggca	tattcggcat	gttcccgaac	1860
ttgcgggctg	agccaagaag	ataggagtga	atatggacgt	cgtacagaca	tcaagtatgc	1920
agacttgggc	aacaccttcg	ctccgatgac	ggtcgaagat	gtgccctcat	ccaacgctac	1980
atagagcagg	gctacgacct	cttccctacc	gcgtatcggg	aggccgcaac	cgcaccaagg	2040
cacagatcga	cagcatcgtc	aaggccgtgt	atggctcggc	gacaaagctc	ttgcactcgg	2100
tttggtgatg	agcttggagg	tttgacacac	gctatcaaac	gggcccgcgaa	gctggccagc	2160
tcggtggcaa	ctacagcata	gagtatggca	agaccaagcg	caactcttcg	aagagttgct	2220
ctcctcatca	gcagcggata	tgaagtctgc	catctgagta	ccattctctc	cgatccggaa	2280
atagaagttc	tgcgcgaact	cgtcccatgc	cgccccgtcc	ttcgggcata	caggcacgtc	2340
tcccctatta	ctcgagccgt	actgataaat	gagacaaccg	taattgctga	agagatggat	2400
ggccccgtat	caacaagtgg	ctcaaacccg	tttccgccct	ctacgggggtg	gcgtgaggtt	2460
gcgcaactac	ctcttcgaca	agaacgtcct	gatttcgaat	ctttcgacat	ccctatcgtc	2520
tgtgtaggca	atatcaccat	cggcggcacg	gtaagacacc	ccacgtagaa	tacctgattc	2580
ggctcctgca	tccacgcata	gtgtagcagt	ggttagccgc	ggctataagc	ggaaaaccaa	2640
agggatatcg	ttgcaaccga	aggatcgact	gcatagggata	taggagacga	acctctcaga	2700
tcaaacgaaa	atatccggac	ctgaccgtca	tcgtggatgc	tgacggagca	gagccatcgg	2760
ctatctatgc	gatctggcag	aagagcaaa	gcccagctca	tcgttctgga	cgatggcttc	2820
caacaccgta	aggtgaaagc	agcctgaaca	tagtactcac	agactacaac	cgtattctga	2880
ccaaagacta	ttgcttccgg	ccggtcgtct	gagagaacct	gccggctcta	tacagcgtgc	2940
gatatggtaa	tcctgaccaa	atgccccgat	gatcttgctc	ccatagatct	agagcagcca	3000
aacgcgactt	ggccttatac	ccgcatcaga	agctgttctc	tccaaatttc	tgtacggaca	3060
gggactgaag	cccttgtttt	ccgatcatct	ccttcggcag	aagtacgctc	tgcgctggct	3120
atcgccggaa	tagcaatccg	aaactgttct	tccgagaaat	acgcacccga	ttccccctccg	3180
gaacgatcgc	atctatccgg	atcatcatga	gtttaccgac	agagagatct	gtttctcatc	3240
caagattggc	acgaactgca	tccgaaagat	gccaatgcc	tagggatatgt	accgagaaa	3300
atgccatgcg	actggcccta	cgacaatctt	ctttccgcaa	gagatgcagg	aaagatttta	3360
ttacctgccc	gtggaagtta	actgatgttc	aatcaggaaa	aagtatttgt	cgataggcta	3420
ttgggagtcg	ccaacacaaa	aaataagcgc	aatgaaacgt	accgaaatat	cttctctggt	3480
gagttcggac	tcatccggca	cctcaccgat	tgtgtccgac	tgaaaaatcc	ggtaccctca	3540
aaggcatagg	ggacgatgct	gcccgtcatct	cattcgagaa	ggcatgaaag	cacttgtcac	3600
taccgatatg	ctcctcgaag	gaatcccttc	gacctcaact	ataccccctc	caaacatttg	3660
ggatacaaaa	gtgcgtagta	aacttctccg	acatatatgc	catgaacggc	acaccacggc	3720
agctacgggt	tccatagggtg	tatcggcacg	attctcggta	gaggatatcg	aacgatctat	3780
cagggtatcc	tcacggcctg	cgatgcctac	ggcgtagacc	tctaggaggc	gatacttcgg	3840
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agtgtatcgc	agtggagcca	accgaccgat	ctgatctgcg	tgagcggaga	cctcggcgca	3960
gcctatatgg	actccagcta	ctggagcgtg	agaaagcggg	ctatcaggga	gaaaaagatt	4020
tgcaccggat	ttcgccgggtc	atgagtacat	actcgaaaga	cagctgaacc	cgaagcgccg	4080
aaagacattg						4090

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 907 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...907

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:943

```
cctctggcgt accttcccga tcatcagggga atacgtaccc cacagtacgc cagctctgta      60
tgggaagccc gccttgccct cgaagagatg ggggcaccgc tcatacattc agtccggcct      120
atagcccgga ggagtttccg gagatacgcg ttatagcagt cacgtcacat tcaactctct      180
cagccagtac tacctgtttc gcccattggtg aagaacgtag gcgtatcgct cggactcaga      240
atcaaccgga atactcggcc gtggagaccg cgctctacaa tccttggtgca ccggttcgcg      300
attcggtgta tcggtttccg aattggggcga caccctgccg gaggtatcga gggctctgcac      360
ttccatacgc tttgcgagag caccggctac gactggagaa gaccctcaag atcattgagg      420
atcgcttcgc ttccgtgctg ggcaagcgca ttggctcaat atgggcggcg gccacctgat      480
gaccgcgcg actatgacgt ggagcacctt gtgcaggtgc tgaacgactt ctcccgccgc      540
atccccatct gcattttatc atggagccgg gcagtgttt cggttgccga cggggtttct      600
caagagcacg gtggtggaca tcgtagagca tcaaggcttg ccactgctat cgtggatgtg      660
tccttcacct gccacatgcc ggactgctgg agatgcctta caaaccgcgc attcgtggag      720
cgcatcagga gccggaccgc gctgcccac atacaggata ggcggatgca gctgtctgag      780
cggcacttca tcggtgactg gagtttcgat cggccgttgc aggtgggcga tgactgatat      840
tcgaagacat gctccactac acgacggtga agaacgacca tgtcaacggt gcacgccatc      900
cggacat                                           907
```

(2) INFORMATION FOR SEQ ID NO:944

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1076 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1076

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:944

```
gggcgtcatg gaatatatga tagcctcgat gctcttgaag gcacgtcgcg tatgtcgata      60
tccttgatgg cctttcccac tcccgggatc atggatgcag ctctttgagg ttacccatct      120
ttttgatctg atgtatcttg gcaaggagtc attgaagtcg aactgattct tggctatttt      180
ctcctccagt ttgcgacttc ccgttcgctg tattgtctct gagcacgctc cacaagcgat      240
acgattcccc catgccaaag atacggtcgg ccatacgctc ggggtgaaaa gcatgattgc      300
ttccatcttc tcccccgta cgcgcaactt gatgggcttg tttcgaccga acggatcgag      360
agggcgccac cgccccgggt atctccatcg agttggtaag gacaacaccg tcgaaatcca      420
agcgtgtatt gaactccttg gtgtattcac ggcgtcctga ccggtcatcg agtccaccac      480
gaaaaggact cgttcgggct gatggcagcc ttgatggcct ctatctcgcg catcatttct      540
cgtcgatggc caaacgacc gcggtgtcga tgatgacaac gtcgttcctt tggctttggc      600
ttcggtatg gcgtgtcggg ctatctcgac cggcttttgc tgtccggttc gctgtagacg      660
ggtaccccgga gctgctcgcc gaggatatca gctgctggat agccgcaggg cgatacacgt      720
cgcaggcaac gagcaaggtc gtttgccctg cttggacttg agcatatttg ccagtttggc      780
```

```

ggagaggtgg tcttaccgga accttgcaat ccggacatca ggattactgc cggctgcctt      840
tgagattaat atccacagaa tgtccgcca tcagagcagc cattcgtcac gaacgatctt      900
caccatcagt tcgcccggac ggacggaggt cgcacgtttt ggccgatggc tttttccttc      960
accaagtccg taaactgctt gcaacgacat agttcacgtc ggcacccaaa agggcacgac      1020
gtacatcttg agagtttcgg ctacattgat ctcggttaatt cccccctcac ctttga      1076

```

(2) INFORMATION FOR SEQ ID NO:945

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1710 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1710

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:945

```

cgccaacgga cattcaatag aaatgaaagg agtagatctc ttttaacttta gaatgggttt      60
ataaagaaaag tctggctctt ctctgagcga attgaagaga agaccgtttt tggacggcat      120
tggcacaagg ttgttaaatga aagagaacct tttgagattg ccattatacg ctgaaaaaag      180
agaatatgaa gtaggtgtgg caataaatcc attagaaaaa gcagacagta gaaattactt      240
ttcttctgcc tgcttttctt taattatata gcttgcccaa ggtatagcaa acaacaaagg      300
agaagatgaa gagttctttc ccgaaagtct gtcgattatc cactccgcaa agtctttgcc      360
tgtggcgtgg caatacgaaa cgatagcatc gtatcatttc aataccatac aaatcaataa      420
atccttgctc agattggatt gtctcattgc ttccgtttcc atcaggagac cctccttgaa      480
tatcgttttg tttgcacgct caccttgcca gagaaggctc cgaacaggtc ggctatctcc      540
aagccgacat ccaaacagga gttgacggga tatgtacatt tcccttccat ctatggttat      600
agttcctctt ttcatagttg tttagtatcc attgttcttc gtctttccat cagcctgtcc      660
atatacctct agattttctt ctccgaatct tcgcatagtt ctgctgtctg gtaatggaag      720
catgtcccat catctggcaa tgctttccgt acatatacct tccgagatta agaacgatcc      780
gaagtatgcc ttgcttgatg gtaggacagg ttctccttgc gtccgatgat gaccccagtt      840
catgtatttc aaaccacatc atatccctgc ttggcaaaag gagacgggtt gtgtgtcatc      900
tgtcgtgttg tatagattga taatctgtct gctatcggat gcaggggaat gaatgattct      960
actttcgtct tcttgcggtt atccgtatat aacgccgtcc ctcgcccgtc tttcctatgt      1020
ggtgcggatt agcaattgcg tatcaacata ggcaagcccc gtaaaacagg agaagatgaa      1080
gtccgtcgag ccagttcttt caacgggtcg ttctgtggca atttaagtcc aacaactggt      1140
tcagttccgc tttgctgatg tgcatacgct tggcaggggc ttcttctcat attcgacttc      1200
ttctaattgga ttggctcgga taatccatgg tcaacggcaa ggtaaaccac tcggttcagc      1260
caacaaaaggc aatggttggtc tgcgatgctc cgaagttttt gtatcgtttc agataaacct      1320
tggtttcccg cccaactcct cggatgatgtc caagaaagca atgtcgctca tgcttttgac      1380
tccaaaaact ctgcaatata actttggtaa tatcttgaac tctgtatgtg gagtttgagc      1440
ctatttcggt agctcttact gcaagacggt tcgctccctt tctcccatct ggagtaaagt      1500
aatgggaact acgacatgtc cgcaatttca tttttcaaca gttccgcaact gacaacacca      1560
tatctcttag gagatcctca taaagccggt ccgcatcact gcggaatttc ttcagacggt      1620
gtttgccgtg catctgaggt ctctgcattt ttggcgttcc attggtgggt tgcaggaaat      1680
gccgtggtaa tgacgtgttc tttccgtcat

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(2) INFORMATION FOR SEQ ID NO:946

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1104 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1104
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:946

gtagctcgaa	tcaaagctgc	aactgcacat	ctaaaagaat	tgaagatcgc	attatgggct	60
gtatcgtaaa	tggccgggtg	aaatggccga	tgccgacttg	gctacgtagg	gccgggtccg	120
ggacgaatcg	atctgtataa	ccagaagtat	gtgttcgctg	tggtattcct	caggagcagg	180
ccgtacaaca	gcttatgaac	tcatcaaaga	aaacggagac	tggaagagagc	gttagttttt	240
cggaagacta	tttttctcag	ttgatcactt	tcctctcaga	gacccaagca	atgaaatcaa	300
aattatcaat	cgctcgcac	atcccttgcc	gacatatgcg	actcggcatc	tgccgggtatg	360
gatctgcgtg	catccatcga	agagcctatc	acttggtgcc	actcgaacgt	cgtctcattc	420
caacaggcct	cttcatcgaa	ccccggtagg	ctatgaagca	cagatccgcc	cccgaagcgg	480
actggctctc	gacacgggtat	tacgctggtc	aatagcccag	ggactatcga	tgccgattac	540
gcggtgagat	agggtattat	atgatcaatc	tctcgaatac	tcctttttaca	tagcagatgg	600
cgaacggatt	tgccagcttg	ttatcgccag	acatgaaagg	ccgaatgggt	gcttacagac	660
gaattggccg	atacggaaacg	aggtgcggcg	gatttgggtca	tacgggcaaa	gaataatttt	720
caatctccct	tcaacaccac	agatgcggat	ccattctatc	attctcctgc	tgtttctttt	780
agtttttctc	ctgtagccgg	aagtatatcc	attacagaca	gtacagcatc	taattcgacc	840
gatattttcta	tgaagggtgc	cggcagcgag	aacaggagaa	tttgctgcag	ctttcgacat	900
ctttcgctat	tgccatcggt	tgaatcccaa	catgcggctc	tggtatcgga	gttgggaaaa	960
ctggatattt	gccattgggc	tcaggaggaa	ggaaccccg	tatttggaac	aaagcctatc	1020
ggctctatcg	accaccaagg	aactatggca	atatattaag	gtgctgggta	tgaacgccgg	1080
gacgagctga	cgatgctgca	ggct				1104

(2) INFORMATION FOR SEQ ID NO:947

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3088 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3088
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:947

ggcacaatga	cgctcattgc	cgaacgggtta	gtccccattc	tccgctcacg	ccgcagggtg	60
tgcgtctggc	ggctgtttcc	aagttccatc	ccgtggaaaa	ctcatggagg	cttatgaggc	120
cggtaaaaga	gttttcgccg	agagtcggta	caggaactga	tgagcaaagt	ggaagcgaatg	180
cctgatgatg	tggaagtgc	ttcatcgggc	cgctacagac	aaacaagggtg	aagtacatcg	240
tcccttcac	tcgatgatcc	agagcgatc	ctctctgaag	ttgttcgacg	agatagccgt	300
caggcgctga	aagtagggcg	taccgtgccg	gttttatttg	aaggcatatc	gcacgcggag	360
ataccaaaag	cggcttttac	ccggagggaat	tgcacaagtt	ctggaggctg	ttttggcacg	420
cggctccgat	accggagtca	aattgccggg	ctgatgggga	tggtctacatt	tacggacgat	480

agggagcaga	tcgcagagag	tttcgccggt	tggcatcgct	gttcagagag	atgaaagagg	540
tttcttctcc	gatttctgctg	attttttgtga	gcttttcgatg	gggatgaggg	cgatttctgag	600
ctggccatcg	aagaaggaag	caccatcggt	cgtatcgaa	tacgatcttc	ggcgaacgac	660
gctattgaaa	gagggaaatg	gttttgtccg	gaatgggaag	agccggagcc	atgctctcgt	720
acgttatact	accggatcgg	tactaaacag	tctcggatgt	ttgccgtcgc	gaccggcaaa	780
tggatcgatg	cagtttccta	tctctaaatt	ctcttttatg	actattccgc	taaggatttc	840
tcgatcaatg	agcttgcagg	atacttgggg	ggtaaaatga	atcgcttggg	gaccgggtct	900
tgctgtgcaa	tgacaagcga	tccctcccg	cgcagctgtg	gctacgccgt	tcctgttcga	960
atccatgctc	ttttctgttt	cacgcgtggc	tatgcacgac	tattgatcga	ttcgagggag	1020
atcgaggtga	ggagggcgag	ctattggtag	tcatgcctcg	caagacgata	gaagtgatga	1080
atcctcttgc	tttcgtgcct	ttcatttatg	tctggacaag	gagattctgc	tttatcggcg	1140
atcaggatca	gcggttttat	ctctatcatc	aataagtaca	cagcaacgaa	ccgttccgtc	1200
cggaaacgat	ggagaaagat	tttctacggc	aacgttggat	ctcatccgca	acgccctgca	1260
aaacgggggg	cgtctcagga	agaaattgtc	atctatctga	tcagctctct	ctttctcttt	1320
cttacgatat	gattgccgag	gaggtcgaga	aggactgcaa	gcacaccagg	tcgaggaatt	1380
ttgccgcgac	tttctgctcc	tcgtctccga	gcatacacia	ggcagcatac	ggtcaagttc	1440
tatgcagaca	ggctgtgcct	cagctccaaa	atttggcact	gacgataaag	accgtcatgg	1500
gacagtctgc	ctccaaagta	tcaacagctt	catcatccag	caggccaagt	ccttgctgcg	1560
ctatacggta	agacgggtcca	ggagatcggc	tatgagctga	acttctccac	ccagtctgtt	1620
tcggcaagta	tttcaagcag	cacaccggta	tgagtccggg	cgaatacgca	gtcaggaagc	1680
tcgaaataga	cagtcogaag	agagctgacg	tgcggtatct	gatgatattg	gaggggaatt	1740
ggttagtgcg	taatatccgg	aaaaaacacg	gggctgtacc	cggatagttc	cttcggtaca	1800
gccccgtgag	ggataatgaa	agatccgatc	ggatctcgta	gaagtcttat	gcgtttacct	1860
taccatgtag	gcgatgagat	cgagtacttt	gttggagtat	ccgatttctg	ttcgtaccat	1920
gaaacgatct	tcacaaaagt	atccgtaagt	gcgataccgg	cttggcatcg	aatacgggaag	1980
tacgggtttc	gccgatgaag	tcggaggaac	cacttcttcg	tccgtgtagc	ccaaaatgcc	2040
tttgagttcg	ccttccgagc	tttcttcatg	gcagcacaaa	tatcttcgta	tttagccggg	2100
ttcgccactg	gcattgtcagg	tctactaccg	atacgtccag	tgctcggcaca	cggaatacat	2160
accggtcagt	ttgccgttca	gttcggggat	caccttgctt	actgcttggc	tgaccgggtg	2220
gaagagggga	tgatattgcc	gcctgctgct	ctacgccgcg	ccagtctttt	gcagaggggc	2280
cgtccactgt	cttctgcgta	gcttggtggc	atgtaccgtg	gtcatgagac	ctcctaccat	2340
gccccagttg	tcttcagtac	cttggcaatg	ggtgccagac	agttggtggt	acaagaagcg	2400
tggaacgat	cttcgtgcct	tttacgtact	tatccgtatt	cactccgcat	cgaacatagg	2460
cgtgtcgtct	ttagagggag	cgcacataac	tacatacttg	caccggcagc	aaggtgtgct	2520
tcggattttt	ctttcgtgag	gaaaagacgg	tggattccac	tacgtattcc	actccgactt	2580
gatcccattt	cagatcgag	ggttctttct	agctgtaaat	cgaatggctt	tcccgtttac	2640
tatcagtgc	catctttgac	ttcgactgtc	ccattgaaac	gaccgtgtac	actgtgtact	2700
tgagcatgta	cgccatatat	tccacatcga	tcagggtcgt	gatgctacaa	tttcaatgtc	2760
gcttctgttt	tgtgtttgtg	ctgcgcggaa	tacaagcggc	cgatacggcc	aaagccgtta	2820
atacctaatt	tcgtcataac	tagtgcttat	attttaatgt	taaccattat	tgttttgtcc	2880
ggaatacttt	gttttcccc	gaaaaggatc	cgcagagatt	cttcccagata	gacagcgttc	2940
aatgaccttg	ctgcaaaagt	aaggaagata	atccacaaac	ggctgatttc	ttgcacaaaa	3000
acatttttct	cgcaccacaa	agctactcca	ttctcggaat	tcgtaagcaa	gccgtatcgt	3060
ccgtcgatcg	ttcgctattc	cttgatgg				3088

(2) INFORMATION FOR SEQ ID NO:948

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 740 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...740

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:948

ggtaccgccc	ttgccagag	ttccggtatg	gatgtcgata	cgcccgtaga	gtcgaactgt	60
tctgccacgc	cacgtccggt	agcaccacc	acgccggcga	gtggcactcg	tccaccatca	120
ccatggcatc	gtatttctct	gccaaatgca	tatcttatcc	atgggagcca	cattgccatc	180
catagagaat	acgccaccgt	tacgatgatg	cgatagcggt	gggcctgtgc	ttctttcagg	240
acgcgtcgag	gtcttccatg	ttggcattct	cgtagcgata	acgtttggct	ttgcgagtcg	300
aacgccgtcg	atgatggagg	catggttcag	agcatcgctg	atgtggcgctc	ttcttctcca	360
aagagcggtt	cgaatacacc	gccgttggca	tcaagcatgc	cgcatagagg	atagtatctt	420
cgggtgtggaa	gtattcggca	aggctttctc	caattctttg	tggatgtctt	gcgttccgca	480
aatgaagcgt	cggagctcat	cccgaatcca	cgctcatcca	tcgcatcctt	ggcagcctga	540
tcagccgagg	gtgatcggac	agaccgagat	agttgttggc	acaaaagtca	atacctcttg	600
gccttcgttt	acgcggatgt	cagcacgctg	gggggtgtga	tgatccgttc	tttcttgtac	660
agcccggett	cttcgatact	cttgagtcgg	cagccaagta	gtctttcatt	cctttgtaca	720
tagcactgga	gtttttaggt					740

(2) INFORMATION FOR SEQ ID NO:949

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1632 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1632

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:949

gaaaccaatt	cggaatcat	caacggttca	gactggtatg	taattcgca	agtcgtcagg	60
acaatgcaaa	ttatttccat	cgtctgcgag	aaattacctt	gaaatcagca	acacgaagtt	120
ggtgccggcc	tctcaacttc	caaagtatgg	aatctgaaca	aagaatctct	gcttgctctg	180
atcgaagaat	ccttatcggc	atccatggta	cagtgaacttc	cgctgcgaac	ggacagcctc	240
tcaaagccag	atcttgatag	aaaaccatga	caagcgcaac	tccgatgttt	actcgatgct	300
accacaggct	actacgtacg	tcctatcaaa	gccggcactt	ataggtgaaa	tacaaagccg	360
agggttatcc	tgaggcaact	cgtaccatta	cgtcaaggac	aaagaaaccg	tcatcatgga	420
cattgcattg	ggcaactcgg	tcctctgcct	gtacccgatt	tcacagcttc	tcctatgacc	480
atctcagtag	cgaaagcgtc	caattccaag	atcaaacgac	aaataacccc	acgaattgga	540
gtggacgttc	gaaggcggac	agcctgccat	gagtacagag	cagaatccct	cgtatcctat	600
agtcatcccg	gtcagtacga	cgttacgctc	aaagtgtgaa	tgcaagtggg	tccaacacga	660
ttacgaaaga	aaaattcatc	actgtcatgc	cgttatgcct	gtagctgaat	tcgtcggtag	720
cccgcaggaa	atagagaggg	ccagacggta	tctttccaaa	accaatccac	caatgccacc	780
aactcgtatg	gatattcgat	ggcggcactc	ccgctaccag	tgaagacgaa	aaccgactgt	840
gctttacagc	aaagccggcc	aatacgaatg	cacgctcaag	gcatcagtag	ttccggtgaa	900
acggtgaaga	cgaaagaaaa	atacatcact	gcaagaaagc	tccggtccct	gctccggtag	960
ccgacttcga	aggaacacct	gaaaagtaaa	gaaaggcgag	acagttactt	tcaaagactt	1020
gtctacgaaa	atccgacttc	atggcttttg	gtgttcgaag	gcggtctctc	tgccaccaca	1080
cggagcaaaa	cccgggtggtc	acctacaatg	aaacaggcaa	gtacgattcc	agctgactgc	1140
caccaacgag	ggcgggaagca	atgtgaagaa	agcagagact	acattgaggt	tatcctcgat	1200
gacagtgtcg	aggacatagt	ggcacgacgg	gtatcgctat	tcgtccgcaa	aacggaacga	1260
agcagatcct	cataaagcca	acgctgctat	caaagcgatc	gttctctatg	acatcaatgg	1320
acggtcgtac	tcaaaactac	tccgaatcag	ctccgctcga	ccgtagatct	ttcatcctgc	1380
ccgaaggaat	ctacaccatc	aatatcaaaa	cggaaaaaatc	cctcgacagg	aaaagatcca	1440
tatcgggttaa	tccgagatct	gctacacaag	aaagggatgt	ccggtggggc	atcccttttc	1500
tttttgtcat	agcaagctct	ggagcattat	tcggtcggtg	tgggataaag	cagatacttc	1560
ttccgcaatt	gtggtacttg	tcgagatccg	attgccaaaga	ggctcggatc	tgctctttgt	1620
ccggcctttt	tc					1632

(2) INFORMATION FOR SEQ ID NO:950

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2294 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2294

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:950

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caccagttga tcatattgcc gtctttgtcg aagttgcggc cttgatcgtg aatccatgcg      60
tcatctcgtg tccgatcact acgccgatac cgccataatg acagcatcgt ctgcatccat      120
gttgaagaaa ggcggttgga ggatggcgca ggaaaacaaa ttctgtttgt ggtcggattg      180
tagtaggcat tgacatctga ggattcatca gccaacgctc gcgatctaca gtcttgccga      240
ggtcaccata ttgtcgtcat gcatccattt gctggcgcggt ttgatatcgg catatagctg      300
tctcccttga ttccatctt ggaatagtct ttccatttgt cggataaccg atcttgatga      360
tgaaggaatt gagtttttcc tgagctttca tctcgtggag tcgcccaccc atgtaagcat      420
gttgatacgc tctccgaggg cgtttgacga ttcttgacga gtttgagcat gcgctctttt      480
gcttcgggtg gaagtattgc ttacataaaa ctctgccagc tgcttcgccc agaaagctgt      540
taccatacct acggaacggt tccagcgagg atgcatttcg gtggttccct cagcgtctta      600
ccgaaaaagt cgaaacgagc ttgctcgaag tcatcgccag atagcttgct gcaccgctga      660
tcgtgccggc gaggagatag tccctctttc gttcagatcg gctttggcaa accaagagtc      720
gaacttcttg aagaatcgag ttgctccaca tcccactctt cgagggtggt gagctgacga      780
tcgggaggta agtagtccaa tcaaagcctt ggtacttatt cgtaaactcc ttcttgccat      840
cttattgtag ttacgatggg tatcgcgtag ttcttctttg cttagcagat ttgtgccagt      900
tcgggtttcca tcttcattgc gttcttgcca aacgggtagc tgcttcacgc tcgtagccgg      960
ccagcttagc aattttgttc gataagctac atacgcctcg cgtatttgct gagacttggc     1020
atcctgctta gatagtagtc tcgattgtca agagccaagc cggctctgggt gatatggaga     1080
tgttcatctc gctattcttg gcgtcggcat aaacgtacga tccgaagatg tgcttccacc     1140
catattgtcc ttagcagcgg catacttcac catagcgctc tgtccgcaat ggcttcgatc     1200
ttctgaagat ctctcttcag aggggtgctc cgtctttatt ccgtttgatg ctatccatag     1260
cttgacgata gagctagcta tacgatactc attagtgcgc acttcatgct gtctgctgc      1320
aagttgtcca caatcagggt tacacgctcg aggggtgctgt cgtgcaggat gtgaatgagc     1380
cgtagcgact ataagcaggt ttgagaggat tgtttttcat caattgccgt tgcagtagcg     1440
ataaaagtcg tcctgcgggc gtacggatgt tccatggcac tgagggtcgat ggccggtacc     1500
ggttcgcgct tcctgtcaga tcgttagtct gacccttatt gccattgcag ccggtcagca     1560
tcaatgcgcg attactgccg gcgcaaggca aagaaacttg attgtcttgt tcattgttgt     1620
gatatttggc attaaaacaa ttctgttggg tattctccgg cttccgtagt tcgcgtagtt     1680
tggttacgac accggggcga tcgtccgaat aagtgcaccg aaccatcggg ctgtcgtatc     1740
cagcacttcc accgaagctc gaccctgcga ataagatcgt tcacaacgaa gggaatgaag     1800
aactcgctct tcgtcctcgc ccatgagcat tcaggaagtt gatgaacagt tcttccgaat     1860
agcgaagtag tcaggagtga atccccacat attcatcgaa acgggtgcat ctctgccagc     1920
gtacatatct ttccggtctc atctcggaat gagatagtag gtctgtgcgc tcgatgccgg     1980
tacgctccac cacaccgcta agcaaatggt ttcatctacc tggcatactc caccgaaac     2040
gccaccgctt tcgtcaggtt attaccaca cggtagccga ccatgcagta ttccgcttgc     2100
ttaccctcaa agtcatgagc ttacgagcca gaacttcaaa accattgcgt ccatagaatc     2160
atccgcattg atgacggcaa aagggttcgcg aatcgcatct cgtccatcag aacggcgtag     2220
ttcgttcccc aaggtttctc gcgccttcc ggacggagaa tccttccggc aagcgatcca     2280
attcctgaaa aacc

```

(2) INFORMATION FOR SEQ ID NO:951

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1079 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1079

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:951

aactccttta	tgaaaaagaa	agactatcgg	cagagtgtgg	aggcctatag	cattcgctcc	60
gaatcaaccc	gaccgatgaa	gagactcgct	acaatctgct	ttggccatga	agttgcttca	120
gaaacagcaa	cagcaaggag	gaggagaaat	caggatcaga	ataaggagaa	taatcacgac	180
aaaaaacaac	cgaaacaat	ccgaataaca	ataaccaggg	cggacagcag	cagccccaac	240
cgtccaacag	gacaatacac	aaaaagatca	acagccacga	cagaatgaaa	tgagcgtgaa	300
agtgctgaaa	agatattgaa	agcctacgaa	caggacgagg	agaaaacgcg	gaaaaagttg	360
agcagatgcg	taagcagcgc	atgaagcagc	aaaaggtaat	tccaccaagc	agtggtagtc	420
cgcttctttg	cgattagctg	ttcaatcttg	ttatctccgc	acagctccag	aaagtaatgt	480
gtacttttagc	tcctcttcat	aaaagcaatg	actcaacgga	agaacgcttc	ggataatttt	540
aatgccggtg	ttaagaaaca	aaacagatct	caataatcac	tgactgtatg	tacgatgaca	600
aaggtgcgat	atattcttac	aaccttttct	ctatgcccg	ttggtgtacc	catgcgcagg	660
tttctttcac	tgtacaagct	cctgcggtgt	ggcgatggga	gaacaattca	gagtgaagtt	720
tacctcaaaa	gatgcaatgg	aacggaattc	aaagctcctg	ccatgagcga	ctttgaagtc	780
cttttggccc	ggccactgct	acaagctcat	tcagttccat	ttccaacggc	aagccacttt	840
gtctcgaagt	atcacttata	catataccct	gatgcccaaa	tcgtcggcac	ctttcagatc	900
ggtcgggect	ccatccgtgc	caacgaccga	gttataagac	caagcaggta	tccatcaagg	960
tgcttccggc	cgataaaaaa	catcgaaaaa	tactaagtct	tcctcttctt	cctcacgagt	1020
cgatgccgtg	tttggtgtcc	gaaccatcat	caataagacc	aatgtacgag	caggaagca	1079

(2) INFORMATION FOR SEQ ID NO:952

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1920 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1920

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:952

ttcgttacag	tcgcacagag	cttgagggtt	cggctcgttt	ccgttccatg	caggtgcttt	60
cggtgctttg	ggcggtgact	tttctgctat	aggacagatc	cggccggcct	gggcattttt	120
cgctcttcgg	aagtctcggc	taccattatt	tctcttccat	atccaatcag	gcagcttggc	180
agggatcaag	tgagacttca	ataaaaaaca	attgcttttc	acgggtatcg	gttatgtcgg	240
atcatgggca	aagccaatga	agatgtaagc	gtcaatttcg	ggctgggggc	gaaggagtgc	300

tggactacga	gcgatcggtt	cggatagccg	gaggtgagca	gaattttccg	tggcggacta	360
tgtggcagct	cagactcccc	gcaaagccaa	tcgtctcatt	tcaattataa	tggattggag	420
agcagttggc	ttacggactt	aggtataatg	ccggttggat	agctcagctt	cccggcgggt	480
atggttttga	tccatattca	agtataaaca	gaatggtgag	taccagatct	tcgggccttc	540
tcacaggctt	tcgacctgaa	agagacgggg	cacgtatgga	actatgactt	ggcttgggca	600
ttaacatcca	agacacatgg	tatttgggtg	cgagcatact	tatagcgatc	tgcaatttga	660
cacgaacact	ttctatcagg	agaattttct	ttcaacaatg	gtgctatcaa	tgactacctg	720
aaactcgaaa	atacttctct	acatcaggaa	gcgactgaa	tatcggtatc	ggagccatct	780
atcgccggct	gatgctgttc	ggatagggtt	gtcctactat	acgcctacat	ggctctggatg	840
aagagttact	atagggtcta	tggctcttct	tattattccc	aagggtagac	tccaatgggtc	900
agccgcttcc	ggagaatctc	tacttcatga	gagccagact	cccgaatcgt	ataatactta	960
tcaaattgagt	agtccgggac	atgttgggtt	agtttggcag	tcgttgctgg	caaaatcggc	1020
cttctcagtt	ggattatgaa	ttggaatctt	acggccagat	caaattaaag	gatgagaagg	1080
tacggcctac	gttgataata	agttcatttc	agaggatttt	ggttcaccca	caccatccgt	1140
ttggggaggag	aactgcgtcc	catatcgctg	ctgagttgct	tgccgggtat	tcacacactt	1200
ccaatcccat	taaaaatgaa	aaattaaagc	tttcgacggc	tcggcacagg	tgaccgtctt	1260
ccctatgggg	gctagcctca	ttacgaactt	ccgggcaatt	cctataccgt	gacaggaggc	1320
ttggttaccg	tttcacgcgt	aatctttcgg	gcgatttggc	tgtgatctat	cgaatgagaa	1380
gagttactac	tatacttttg	gccgaatggt	atcggacgac	cgaatccggc	caatgtgttg	1440
gaagtggaa	ctcctgcacc	ggcaaaaactc	ctcgctctaa	cttcagatta	gcaatgacaa	1500
tgctgtatcg	cttctgaaat	agcttgacgt	gtatttcggt	tctgaaaaac	gtggtctgag	1560
aagattttat	tttggttcgg	gagttgaaaa	aatctcgcgc	cggaaacgaa	agattctgctg	1620
ccattttttg	gagatttttg	tttgagattt	tgatctatag	aaccacactc	aatcataaca	1680
gcctgcaatt	tgacctatag	accaatagta	tcctaagtgt	ttttaggggg	atgctgagttc	1740
ttagtcccg	agtggaaata	ctccggacta	tcattttttg	attttagggg	gatccccct	1800
gcctattcaa	agactgattt	tcgctctccg	gtggaggagt	aaaaggctca	ttcagccatt	1860
gctcagatca	attttgggtg	aagtgttgat	ccgcagggaa	gagaccaa	tgacagacac	

(2) INFORMATION FOR SEQ ID NO:953

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:953

ccatcgcgca	gaaagatgcc	gagctggttc	gcctgcagtc	ggaactgaag	tcgtcgaaca	60
aaaaaagcag	tccgagctaa	gcctcgctat	cgcaggaaaag	agaaagaaat	cagcgatctg	120
aaatctgcca	tcagagacaa	agacagtcct	tggagatcgc	cgttctcaaa	gagcaacaga	180
aagcacaaga	ggatataaat	ccaaagaagc	agagatagcc	ctactgaaag	cttcggcaga	240
gctggcaagc	aaaatgcaac	cattcaggag	aatgcgctca	aagaccggta	tgaaccgctc	300
tgaaactgaa	gcaggaagag	gtggactatt	ataaagatct	gaagctcgca	tgtccacgaa	360
aatgatcggg	gaaaccttag	agattcattg	ctcacccaat	tcaatcagat	gctccgcccc	420
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atctctatta	g					4511

(2) INFORMATION FOR SEQ ID NO:954

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2041 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:954

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atctcgtgaa gagttcgata tacatgggtg aggaatggac ctcgatttcc cccacacgaa      300
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a
2041

```

(2) INFORMATION FOR SEQ ID NO:955

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3119 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3119

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:955

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(2) INFORMATION FOR SEQ ID NO:956

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 777 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...777

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:956

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(2) INFORMATION FOR SEQ ID NO:957

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 738 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...738

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:957

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tcataaaatt cagaactc

720
738

(2) INFORMATION FOR SEQ ID NO:958

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 939 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...939

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:958

ccggtctgga	agctcatctc	catgccggac	aattaacggc	tctgctcggg	tgaatggtgc	60
cggcaagagt	acgctcatgc	gtacgatggc	aggattcaga	agcccttata	gggacaaata	120
catctactgg	ggcggtcatt	ggacagcata	aagagataga	aatagccaaa	cgtataggcg	180
tagtgctgac	cgataatgcc	ggattgccgg	gatgacggca	ggcgaactcg	tcgcattggg	240
acgtaccctt	ataccggatt	ctggggcaga	ttgcagaaag	gagacagaaa	gctctggcag	300
aagccgtaga	acgtgtggga	atcgctccgc	tgatcaatcg	cgactaacta	cgctcagcga	360
tggagagaga	caaaaagtag	tcacgcgaaa	agcctggcac	agcagacacc	gatcatcttc	420
ctcgacgaac	cgacggcttt	ctcgattatc	ccagcaagat	ggaactgttg	cacctcttgc	480
acagcctggc	catgataccg	gcaggactat	cttcctctcc	actcatgata	tggatgccat	540
ttacccatgg	ccgatcgcg	ttggctgctg	gacaaggagc	gttctttcgt	gagggctcgc	600
cggcatcttt	ggcctctg	cttgaagatt	atttcgggat	atccatcctt	ctcccacatt	660
agagccggtg	tagcatgctc	gccgggttata	atccgatagc	tttgctcccc	caatcaaagc	720
tatccggaca	gcccgtcg	ccccttctct	ttcctctttc	agttataatg	agccgaagta	780
tagccctttc	ggtataggaa	tccatgccgt	ttgacctgcc	gtcatgtatg	caagccgact	840
tataccataa	gagctgtgtc	tgtaaaaacg	gaaaaggagt	gtccaaatgc	agtgaaccct	900
gaaagtccga	tacaaaacat	tcagggttca	ctcaaaacc			939

(2) INFORMATION FOR SEQ ID NO:959

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:959

agagatat	ttt	cggcag	tacg	gaatcg	ccccg	gggagata	cata	tattgctc	gt	tcgcactact	60
gaagatc	gtc	agggcga	aa	tcagctc	cag	taccttac	gc	ggcgaatt	cc	ccgataat	120
gctgact	ccc	gaagttc	ttc	tgtctc	gaag	caagac	ggtc	aaaact	gtaa	tacgggtg	180
tttctc	ccac	caccgg	tca	gcaggt	gaaa	cacata	agga	gagtga	acat	gggtgc	240
acgatc	agca	gatagc	gaac	aaagc	gcaat	gcatg	caagt	gcactc	tatc	gctgcag	300
ggaatg	aa	ggagag	acaa	gacatt	gaca	agatcg	gtcg	gatata	aactt	actcctg	360
ttgggg	caag	atcagat	tga	gtactac	cccc	tatatg	gcag	ccaaacc	gat	accggcc	420
gtaaat	ccac	cgaacg	aaac	gctgct	ccgc	cgatac	ccgag	cgtaag	agt	atggac	480
taataat	tatt	cgtgtc	cgac	tcatat	ccac	tttatg	attg	accagat	tgg	caatgc	540
gaagct	atcg	taccga	atag	gagcag	catg	ataccac	cgga	gaacgg	caga	gggatg	600
tgagca	aggc	actgac	ctta	cctacag	ctg	agaaaac	att	cccgtt	acgg	ctgctat	660
aatcacc	atc	ggatcc	gcta	cacgag	tagg	gccatg	ggtc	cggtt	acttc	cgaata	720
gtcacg	ggag	gtctcc	agc	agacct	gcta	ccatac	aggg	caaacc	atcg	ccaagag	780
tacgtg	cagc	cccggat	ctt	ttacaaa	atc	ttttc	ctgtc	accgtat	ttta	ccaatag	840
tcgccg	atat	gttctat	cac	gggagc	aa	gccacag	gca	actaa	agagg	atgggag	900
gagaga	aactt	ggggaa	agaa	aactgag	gca	gctca	accac	gcagc	ctcac	gaacagg	960
cagatc	gacc	tcatag	aaaa	aacggc	tatc	acatag	cccta	ccactat	acc	gcagaag	1020
ggaatc	agct	gaaaag	cccc	ttggcc	agca	tagttac	tag	cacggc	ggta	gcaagc	1080
agtagc	ccagt	atccagt	tgg	attgtg	ccat	atccact	ccg	gctccg	gaag	cgaaagt	1140
atcagg	ataa	tgacagg	ggc	gatgac	taca	ggcggg	acaa	acgttg	ggatc	acacgt	1200
cctgcc	actt	gaccaa	agca	ctcatag	ata	ataaac	ccaat	gccacac	ccga	ccatacc	1260
aagagc	accg	ggcacc	cata	catctc	cgta	gccttg	ataa	taggag	cgat	aaaggc	1320
ctatac	caag	aaaaat	taggc	accttt	cctt	tcgtc	accaa	atgaaa	aatc	aagtacc	1380
gccggc	cgta	aacagg	gctg	tcgaag	ggtc	taaacc	ccaca	agaggg	ggcac	taaaac	1440
gctccg	aaag	caacaa	agag	gaactg	tacg	ctacag	tgt	ttttc	ggagc	ggagag	1500
gggttg	tttc	catata	aaaaa	ccgatt	tataa	tttgct	ggat	tttaag	ccct	gcaaat	1560
ggcatt	ttcct	ttatccc	att	gagttg	catg	cttg	ttttg	aataat	tcga	acctat	1620
ataagc	agaa	cacgat	gttc	cttggg	atta	tacttaa	aaag	tcacg	actt	tatact	1680
accctc	cata	ctttata	actt	aaaacc	cccta	tggtt	tatac	tataa	agtct	cctgcg	1740
tacttaa	aac	ccttggg	gct	ttatgt	tataa	agtctc	aaag	taatc	gaaaa	tagacc	1800
ataagt	tttt	tttcag	tttt	tagcc	attat	ttat	atgga	aaggt	tagac		1860
aactcg	acag	gcgaat	ccctg	agcatt	tatct	ccaata	aatgc	ccgtat	gccg	tcaaag	1920
tgacag	aa	tgccg	cgat	cgctg	ctgc	cgttc	accag	gcgtac	aaag	aatgat	1980
atggg	agtta	ttacag	gttc	gggct	atcga	tcaacc	cgaa	gtctt	tgggt	ttcaga	2040
gtactt	acgt	aggcgt	ttctc	tggaga	aaagc	ctcgat	gtac	aaggat	gtac	tcccc	2100
gtaca	acttc	ccgagat	cg	ggagt	gtcac	tatac	gacag	gaccct	actc	tttgct	2160
agctct	tcgc	catcgac	aat	gaccac	ctga	tggac	attct	gaattg	acca	tccaaga	2220
ccccg	gtatc	gtctct	acag	aaacg	ctgat	ctctt	ggccg	aaggat	tcaa	tcgtgg	2280
aagata	ccccg	aaggag	agca	atagc	acatg	cctatt	ttata	catata	accct	caccgat	2340
atacg	tataa	tgctgc	tctat	acgct	tacc	aattag	cctc	tgctg	tccgg	aattgt	2400
aagc	ggattc	cccgg	acgct	attgg	gtcag	tgca	gagacc	agtg	gtgtcc	cgtagg	2460
tcggg	acatt	gctac	ctgga	gttgc	tggac	aaggat	acac	cggtc	ctcaa	gtaacag	2520
gtatg	aaagc	catgat	atgg	gcttc	ggata	tgccac	atta	tcagg	acgct	ttcagag	2580
aacggg	cga	acattc	gttc	cggtc	ctcac	gttct	ggtag	tggt	aaagt	gt	2640
gagca	aatgg	actaag	cctt	cgcat	tctgg	acatag	accc	ctcct	acaca	atggg	2700
ggctc	gcaaa	cgcaa	agaga	tcacg	aa	actgc	gccg	caagt	ctata	cgacct	2760
cgcag	cctgt	ccctac	cccc	acccaa		cgctt	gccat	agtct	catcc	gggtc	2820
ccggc	ttcga	agattt	catc	gccac	cttag	ccattc	ggcc	gagc	atttct	gtttct	2880
cgctc	cttc	cagc	cgatg	gcaag	gagca	caaacc	gaag	catcg	gtgtt	gggag	2940
agcgc	atcgc	atatc	accgg	gattc	ttctg	atgtag	tgtt	catc	attc	ggagg	3000
agtgag	cga	ctggc	agctt	tcgac	tgc	tgccat	cgcag	aagc	atgtg	tc	3060
ctccct	atcc	ttacc	ggcat	cggac	acaca	gggac	gagac	ggtg	gtggat	ctggt	3120
atcg	ttcgct	caagac	cccta	cggct	gtggc	cgatt	ttctt	gtaaa	actgc	agcgc	3180
gtgga	attga	tcgac	gac	ctc	ccgt	gctgc	cgaa	gactt	cgaat	gatgt	3240
actgcc	acga	acggct	gatt	cagct	atcgc	tccgc	acacc	ggcata	actga	aatcat	3300
tcgtg	aa	caccat	cgga	taaag	tccg	agagat	cgcga	tccg	attagc	cgctaa	3360
cggatc	gcct	tcggac	ttca	gaact	ccaaa	tagca	agccg	cagc	ctgcg	gccttg	3420
agagc	gaact	aaacaa	aaata	cgggt	caatt	ggatc	aggta	gcag	cccgac	tgcctt	3480
gtgac	agcca	atctg	aa	ga		ctaca	atcga	cgcct	cga	aa	3540
tgttg	caccc	caatg	ct					ccaa	cga	aa	3557

(2) INFORMATION FOR SEQ ID NO:960

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1122 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1122

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:960

cgatatggat	aaactgcatg	tggctcaaag	gcgtgggtgat	gcgtgcgcat	tcaacggcaa	60
gataccgaga	aaccgcgttc	ctcagttcca	tgtcagccga	acacgaagga	gcgtgcgttc	120
ctcacggagg	acgagttgaa	gacactgtgt	cgcagtgagt	caaggacagc	cattccgcct	180
tcgtgcgtag	tttgttgtct	tcgcctcctt	caccgccctt	tccttcgtgg	acttgaagga	240
actcacatcg	acgagattgt	ggaggtgaac	ggtgagaagt	ggatacttgc	gaaaggcaca	300
agacacaggt	gccgtaccaa	gtgaaactgc	tcgatgtacc	cttcaaatca	tcgacagata	360
ccgaccgttc	caaaaggaca	actccatatt	cgggacatca	actactggac	ggtctgcaag	420
aagctcaaaa	aagtcatcag	cagtgcggaa	taacaaaaga	catctccttc	cattgcgcaa	480
ggcacggcct	gcgacattgg	cactcagtaa	gggcatgccg	attgagagcg	tgagccgtga	540
ctcggacaca	cgaacatcgt	aaccacgcaa	ctctatgcga	agataacccc	gagaaactcg	600
acaccgacct	ctccatgctc	ggcagcaagc	tcaacgctca	tttggctata	tcaaaatggc	660
atgacaatga	aagggaagg	cataaaagca	atgtccgtca	gataatcacg	gtggacgaac	720
atgggaacat	caccgaccca	atgaagaaat	atggatgagc	gagtatgaga	ttgccgacct	780
gctggcgtag	tcggacatac	catccgcacg	cagggtcaaga	agatatacac	ggaggactgc	840
tgactcctg	cacggcagag	aggaacatca	gggtggcgga	ggtcgcctggc	ttgatgtgta	900
cagccttgaa	atggtcatag	cccttgcggt	cgcatacagg	cgcaaagggc	aaaaaggcct	960
cgaaagcatg	tcatacgcaat	ctgaccgaac	gacacggagg	ctttatcatg	ttcctcccag	1020
cagaagcagt	tgttcctgct	aaaacagcct	gacaggggtt	atagagggtt	gtccccatga	1080
cacaagggga	taaacctttt	ttcttttttg	gtggctggga	ga		1122

(2) INFORMATION FOR SEQ ID NO:961

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 588 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:961

gttttatgga	ttcaagctac	atattgttat	caacgacagg	ggtgaaattt	caactatcaa	60
atcacaccgg	gcaattgtga	tgacagagaa	cctctgaaga	cggaacattc	accaagaatc	120
tttttggcaa	actcattgcc	gatagagcta	catttcccaa	aacctttttg	accggctcct	180
tgtcgatgac	atccactgat	aaccaaaatc	aaaaagaaca	tgaagaactc	cctgatgcat	240
ctatagacaa	agttttattg	agaaagagag	ccttgatcga	aacgggtcaat	gataactcaa	300
aaatctctgc	cggatagagc	acacgagaca	tcgcagtgnc	aacattttgt	caccaacctg	360
atctccggta	tcatcgctta	caacatcctg	ccaaaaagcc	tgaactcaat	attgaaatca	420

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tcagaaaccc taacttttctt attccgctta gatcgaactg acgttatctt atatgaatgc 480
agggtttcagc gaaagggaag ataggaggct ttagcctttg tacacggtaa ttgttgattg 540
gaaaattttt ctttcggagg gttttgtccg aaacctcgta tatttgtc 588

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(2) INFORMATION FOR SEQ ID NO:962

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1855 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1855
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:962

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ggccgaaaaa ggcttttttcg agagccgaaa taaaagaggc acccgctgt tgcctacaa 60
atcaagcggg tgccttatga aatttttaggt ggtgtcgagt cttattccac tctactcgtc 120
atagcatagt aagccccctt gtccgaatcc ttgtggcata tcggatcatt atcaggcgta 180
aagcaggaga gttgggcgtt gggctttctt ttaagtgtaa attaaaagca aaagccgaag 240
tctttatcgt ccaatcatta tcagtacaat atatcttcta ttacttggtg tccacaagaa 300
gaaacgcttg ctttggccta tgcattcttc ggctctatgg aaggatcctt atcagacctt 360
gcaaaggtag caaaaatttt taggacacct tttgttcaa attagttgtt aatgtggact 420
atttaaattg attgagcttt caagcttagc ttattttatt gacgtataca aatctctcta 480
tgtgtaatta acaaacgtaa tcatacaaaa agtaacttga taagcataag gtttgtgctt 540
acaacaagta tattatcttt tttcttagtt gacggtcagt tgccaaatag actacctttg 600
tgctcggaag cgggcgcaat aaaacagatg ccgacaaata tcgatttcat gatggcgtc 660
actatctatc atccggcgaga attgcccagc gacaggctga aaaatcccca aataagacta 720
taatcaaata ctacgtcgcg aaagcaaaca atggcgcaat atcagttgga gcaaatttgc 780
tgccgcgtca tgaatgctgc gaaagcttta gccgagatcg gtctggaatc ggggaacgaa 840
tcggtatcta ttcccccaat atggtacact gtctgtatac cggttggggg ccttcgccat 900
gcgggggtga ttagtgccct tgtatgccac agctcacogg aacagttacg gttcatcgtg 960
gaggattcat ccatggagac ttgtttgtcg gagagcagtt ccaatacaac aatgcttatc 1020
gggtacagaa gaatatggta cgctaaagcg catagtcgta ttcgatgagc gcgtgggtgc 1080
aatccggagg ataagacttc gaaatacttt tccgaatttg ttcgtttggg gattccatgc 1140
cgaacgagac gaaggtcaaa gtctcttctc gcgaagcatt ccttcgatc cggcactgat 1200
catctataca tcgggcactt ccggtggagc aagggcgtcc tcctcctgca cagcaatctg 1260
atgtatcaga tgaagtcctt agcgagcata tccccgtcta tgggcccgggc gagctgtcga 1320
tagtttcctg ccgatgagtc atattttcga aaaggcatgg acactctttt gctgacgacg 1380
ggaacgagga ttgccatctt gagagatccg aagaaagtat tgaggcacta cctcagatac 1440
gcccacgct catgtgcaac gtgccacgct ttgggagaaa gtgtatcagg gcgtgaatga 1500
gaagatggcc tcctctcccg catcctgaaa ggtgtctaca ggcgtgctat ggccgtaggc 1560
caacgctacg tctcgactat tggaatgagg ggaagcgtgc gccactgctt ctgagtagca 1620
atatgccttt tacaactgca ctatttttac cctgctcaag cgcgtatggg actacagcga 1680
gggcgttatt tccccaggn cgagcaccg ctatcgatga gatcaacatc ttccttcagt 1740
ccgtaaacad tcccatcatt gtcgatattg tctgtccgaa acgactgcca cggtatcttt 1800
ctatccgcag cgagattcaa gatcggtcnc atgggcaaag tgatgccggg ctgga 1855

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(2) INFORMATION FOR SEQ ID NO:963

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1899 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1899
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:963

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gagagtactg tataatccga accgaggaaa cgtcctatcg ttttggcttt gccggagact      60
ctacgatgac taagtttttc atccttctgg ttgatggggg ttgattttgc gcgcaaaggt      120
aatgtattcg taccgcaata caaatgatga gagatacttg cacattccgg ttccaagtgc      180
aattgctcgg cggatcttac acttaaggag acctttgaaa aaagagaagg tctctatctc      240
tatatgtcgt cctttaaaaa acctctttaa gggacgacta tatagaaaac aaatcattgg      300
ctttttctta cgtcgaactg acgttgtaag cagattcctc acgatttggg tccggaattg      360
gccggaatgc ggttcgagtt ttctgagatt cagagcgaga atttttccgt tgtggcgcg      420
aaaaattttt cttcccacgc caaacgaaaa aattcccag ccacgttttt ccaaacgcta      480
aaccgccatt ttacgaactg acgtgtacgg aatcggagag gtcaaaaaaa gcagtaatct      540
gtcgaacat  ttgacctatt ccgagcgtct tcacattgtg gaagaatact cggcagcccc      600
ggagcaagta tgccatcaag aagaagtaca acatcgccag aggccttatta gagaccattg      660
cacggcattt tgcgatatga ccattgtctt ttcttacgtc gaactgacgt ctatatacaa      720
atgggctatg aacatgaata ccatcatccg atttctaatt caacagccct gatttacaca      780
ccttctctgt ttccctcgt  atcaggtctg cttgattcct tcggagtcgt gatgaccagc      840
atttgacagt gttggcagtc gaatcggagt cgcagacgag ttcgccatga atcaggtagt      900
acggttctct gtacggcgat tccttgtgtt gaggggtggg caatagccca aatgatagcg      960
gagacagtgc ttcgaaaaca aagcggaaac ccttggggat gcgagtgttc gaaggcgggg      1020
gcgatagatt atatcccatt tgccgataga aggtttctgc ttccttggtc gccacattgc      1080
taagaaggaa aggcctctgt ctccctcctg caagctgctc gccgcagaga aatgcgacgt      1140
tgtacgaccg gtttttcttc acgttcaggc atagagaggg tttctcgatg aaggattgga      1200
ctgcatctct ccttaaccgg ccaatagaga aagcgggatg aaatagtcgt gactgagccg      1260
gatatcgact gataggcttc aagcgggtgta ccacctaatt tggtcagatt cttgcggatc      1320
tgccctcatc gaaccgtgtg gcaggctcgt gagcagctgt tatcgtagcc ttgcagatgg      1380
gtagcagtcg gcctctatcg agagagagaa gccgtccgga aatccgtcaa ggtaagagat      1440
acgggaatga ggcgaacggc cgagtgtctc gcgagagagc tttctcgaaa cggatgtcgt      1500
aattgcggaa tacgtttgtc ccgatacgat gccggcagga ttgtccactt gtatgctgcc      1560
gtcgggtaaa ccacattgat gcgcgtaccg ctcatgttgc cgtcgggggtg caggaggaaa      1620
ggccatcgcc attggccagg gagggcttgg ctcccgtatt atcggggcgca gccggatact      1680
gaccttgtcg cgttttacag ctgtcacgca gccgaatagg cacctttgct tttgttcgat      1740
tcgggtgtga tgagggtatt tgtgcgcgct taccacttag aaggagatta gtgaagccac      1800
ggttgaagct ctttcagggg cgggatggaa agcgaaagtg cagcgtcccg atgaagctct      1860
acataacggt cggggtagcg gctgatgagt tcgtccaaa      1899

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(2) INFORMATION FOR SEQ ID NO:964

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2469 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2469

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:964

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ggcaaggctc ctttgatcgg acggagcgat ccatccaacg aaagctcgcc ataatcatat      60
agcgcggcag agagtctgct ccgataatgc catctgcacc atgagtgcga tggcaagggg      120
aaggtcgtag gcagtacctt cttttttatg tctgcccggac tgagattgat cgtaatgctc      180
ttttggggaa aggtgaattc agacagtcgt atgtggagcg aatcctatcc agactctcac      240
ggactctgca tcggggagtc ctaccatact gagatagcaa cctcgggtga tattacttcg      300
acggtaacgg taagggcgtc tatgctgtgc agagcagcgg caaggtcttt actaacataa      360
taaagaaaca ggggtgcgaa ggactatcgg agctgtagct tgcacggcgg ctacggatat      420
ttccggctgt gtcgatgtgg aagtatatgg aaggctgtct atgccatatc gctcgagaag      480
tgtcgatacc gtccgatact atccgatgcc acacgtccgg gcaaagccaa cttcctgata      540
gtttacggag agatgagtcg ggtgcaaaga gcgagagagt aagggttttcg gctttgtctt      600
tcttctttta tctctccata ctttcaatga tgtagcgtag tggagtcagg cttgttcgtg      660
aagagcaaaa gcacatcttg tccccttacc agaaaagagt gaaagatcgc tgatcaatat      720
ccttgacaag gaagtcggag ccaaaccggc gactgcgtac gacttattcc ggctaaggat      780
ggaacaagag acgggggaag ccggtgcacg gagataccgg agcggcgaat gagtctatgt      840
cgaaaagggt gtattcctcc gctaactctg ttataccggt ggatcgggat gggaaagata      900
gaagtcaagg gctttgagcc gcaagtctct gaggcctttg ctttggaggg gaagtcgggtg      960
gttcggagat gatcctgata cgatggatct cttcttctgc agtttgcatg aactcgttca      1020
gtgtggcatt gtacttcttc cttttatttt aggcaggagg gggttggtcgg catcgagatg      1080
attttaatat cttctccctt ttcaggatag agccgaagca cgttattccc tcgttgaagt      1140
ataatagaat gcgactaaca tcgcctttga tttcgttcga atctgtgcct tgggcgaagt      1200
aacgtgtatc tcttctgtgc gaaagagcct tccccttcaa ttcgcagagc cagaaccgaa      1260
tcgcctcggc tgagttggag agattcagtt tgaggtggca aacatcagat gctctactgc      1320
atgaagagaa aggagcagga caaaacctgc tactatataa tatagtatgt tgatggcttg      1380
gacattggga cggagtgttt catgattccg taggaagtcg ggcaggatatt cctctacagt      1440
ttccggatag tgtgcatatt ccaaagcgtg attcctttgg ccagcgtatc cggagtatct      1500
tccggaagga ccggacagat gcttgacgga ggattttgcc gtggtcataa tgtccatcga      1560
caagatgatg gtgataccgc tttctttttc ccttgacgca aggacggctt cgtgtactga      1620
tgtccgtaca ttcctttttc gccgaacttg ggcaataatg caggatgata ttgacgatcc      1680
tgtcggggaa ggattccaag tagggtgcgg ttataaacac atatagccgg ccagcacgat      1740
caggtctatc cctaattctt tcaaagggca atgggcttcg atccttcgag catctcttgg      1800
gtagtaaacy aatagccggt attttcagcc gatgggcacg tgccataact cctgcacg      1860
aggattgctg aggatcacag ccaagcttgc cgaacctctt tgggcaaaga atgacacaga      1920
ttttctgcat ttgagccatt accggaagct aaaaccgcta ttttctcatt ttatttacta      1980
tttttgctgc acacaaagag tgtgattgtc agattttctg gcgctgataa tggactaaca      2040
cggatttttc tgtgctaatc cgctaaacag cgctaaatga agcacaataa taagtaagaa      2100
gattattgta ataaccattt taaagaacaa gactatgtct gaagtagaaa aaaaaggatc      2160
gacctcgtag ttgacaaatt gaatgtagaa gcttctgaag taacggtgaa gccagtttct      2220
caaatgaccc tcggagccag actctcttga tacattgagt tgatgatgaa tttcgaaaag      2280
gaattcaaca tgtctatccc tgagaccaag cacaggagat caagactgtc ggcgacgcta      2340
tcgactatat cgaaaaaacc tgaagtaaaa tactccgatg gaactgaaaa gagtagtagt      2400
acagggttag gagccattac tccgcttggc aactctgtct ccgaaacgtg gaaagcttag      2460
tggcaggca

```

(2) INFORMATION FOR SEQ ID NO:965

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:965

gccttgactg	ccggcaaaat	cctgattcga	agcgatctaa	ggaaaagaag	aaccctccca	60
tcatggcaaa	aagcatccag	gcatagggtgc	ctaatagaag	aaaggccttg	gcagggtcag	120
aacatcctgt	atgggtttgga	gcgtatggta	gagggatagc	ttggcgaaat	ctggtacata	180
ggcatccccc	cgaagaactg	ttggtccaat	aggagtgttc	tcctgtctgt	gcctcccaat	240
cgcgtcgtcc	tgcgccgtac	cgctggctcc	cgctacgtcg	ccctggaaca	gtaccgcccg	300
tcgaatgagg	cgggatagaa	ataggccaaa	gcgagggcta	tgaaggaggt	acgaccgcag	360
cataaggtag	gatttttgcgc	caatcaggct	tttcttatcg	gtggtgggta	cggttccggc	420
agcagctgtc	ggcttttctg	ttctttcatg	atgtcgtttg	tttttcggtt	acaaagttaa	480
aaaaccatgt	attggctcgg	cctacgacca	actgcttctc	tgaacgttga	gcagagaaga	540
tcctccgcac	attgttattg	tatgcaagag	gtcagaaaaa	gagcagttaa	accttgggac	600
aagctctctc	cctatttctat	atacatatct	gaggacaagc	gaaaccattg	aggaaagagg	660
cggcatccat	ttgtttcttg	ccgggctttg	gagcgagagt	atacgtagga	cccctttgcg	720
tgtcatcacg	tcgagttttt	cttgtcccat	atgatggagc	cgaatcggcc	tctgtgtcgc	780
ggtttcgttc	tatcacttgg	gtacgggtata	ttttcagcac	gatggactcc	atcttggacg	840
atgaagcttg	gtccaagctg	taggagcagg	cgatatgctg	cgatgaaatt	gtgtacctct	900
tcagccggtt	tgtcccaatc	gatacggcag	tgtctttgaa	aatcttcgga	gccggctcgag	960
catcaacata	gcccggaagt	gctcctgagg	tatggagacg	ggttctcctt	cgagaaacaa	1020
gtccactgtt	gcaccaatac	ggatgcaccg	agagttagcca	tacgttcgta	caattcgcga	1080
aagtctcttc	atgtcctata	ggcaacttct	cttgcagcag	tacttcaccg	tatctatctc	1140
atgccggagg	cggaagggtg	taactcccg	ttccgttcgc	catggcgtat	cgcgtgggtg	1200
ataggggctg	ctcctcgata	catggcagca	gagagccatg	cagattgatt	gttcccatgg	1260
ggggcatttg	ccatcggagc	gaggaagcat	acggaaagcc	actacgattt	gcaagtgcgg	1320
ctgtaagtcc	gtagtccatc	gagaaaagat	tcctcgttca	gattgtccgg	ctgagaatag	1380
gcagacccaa	ttcctgtgcg	tatagtttga	ccatactggg	attaccttat	gtcctcgacc	1440
cataggcttg	tcgggcatag	tgaccacagc	tttacttgg	atccgttttc	gaccaaagct	1500
cggagtgcg	gaacagcaaa	tcggccgttc	ccataaaaaa	caatcgtagt	tcttct	1556

(2) INFORMATION FOR SEQ ID NO:966

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1812 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1812

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:966

tggtctctcc	gatttcgaaa	ctttccaaac	cgatgatagc	gcatatatcc	ctgcatccac	60
atggctcggct	ttggctcgtc	ccaagccttc	gaaggatatca	gctccttgat	tcgctgcttc	120
tgcacgtac	catcacgctt	gcagagctaa	tatcctgccc	ttcgccggagt	gtgccgcgat	180
gtactcggcc	gacggcatac	gccccacata	ggaagtatat	tcaagcgatg	taatgagcat	240
ctgcggggcac	cctccggctg	ttcggggagcg	gggatgtgtc	ggatgatggc	atcggtagcg	300
gagcaatgtc	ctgtgtggga	tgtttgtagt	cggtagctcat	ccaccctgct	tggccgagcc	360
gtatatgggt	gggaaatcga	gctgatactc	cgagcatcga	ggctgtacat	gaggtcgaac	420
accatacctt	gcacttcgct	cgacggcagt	tgagtttgtc	tactttgttg	atgacgacga	480
tgggtttgag	cccatctcga	tggctttttg	cagcacaac	cgagtctgcg	gcatcggccc	540
tcgaaggcat	ccaccagcag	gaggcatcca	tcggccatat	tgagcacggc	tccacttcac	600
cgccgaagtc	ggcgtgtccc	ggggtatcga	tgatattatt	ttacaaccct	tatagcgaat	660
actgacgttt	ttggaaagaa	tggtgaaccg	cgttcgcgtt	ccaagtcgtt	gctatcgagg	720
aaagtatcca	cttcgcagcc	ttgtcatccc	tgaaaagcct	gccggctaag	agcatcttgt	780

ccacagcgtg	gttttaccgt	ggtctacgtg	ggcaatgatg	gcaatgttcc	tgagtcctgc	840
attttcttct	tctgagtaat	tggggacaaa	ggtagtaaaa	cggctgtttt	tcggaatgga	900
tatccaagtg	ttcggattct	gcacattcca	ttgcaagagc	gttgcatttg	caggcaaaaa	960
aagacgccga	cgaagtgtct	tcatcggcgt	caataggatt	ccaagatata	tcttgataga	1020
gtttttcagt	gacgatatac	gtcttacagg	atgatgttct	tagatgtctg	tgtattatag	1080
caaacaaaac	agtgacgaga	atatggcctt	tcgtctttaa	gtcgataaaa	attctctgcc	1140
ctgtgtctga	ctcgtggcaa	aaagcatccg	tccctgcatat	cataaatata	gaccgatttg	1200
atcagttttt	ctgccttgat	gccgaggctg	ttccttggat	gtagacgttt	atatcgttcg	1260
acgaagggtac	aacttttggc	tatctgtcgt	atggcatgat	ttggcaaccg	tgctatagaa	1320
gatatgggat	acttcagctg	ataatcctgc	acaatgtctc	cctctaccct	gagcgcgttt	1380
ggaggggata	ggagtttccg	gctatcatta	cttctccgtt	tcactactga	taaagtggcc	1440
ttcgtcatct	ttgattgcga	tctcgaagcc	ctgtcgtctt	ttacgcaaac	aatagtcgct	1500
gtcacttccg	gatacgtaat	tgcggcatag	ggatctcgtg	aaccactccc	tcgaaagtcc	1560
gattggggga	gtgatgcgtg	tgacatcag	ttcatagtag	gcatcgaatt	catggaacga	1620
ccttctgtaa	ttagcatata	gcccacttgg	gcgtatggac	agaactcctt	aaccccccat	1680
aataagctgt	aggataataa	taaccttttc	cctgaaactg	aatggtgctc	taaaggctat	1740
cggttgtcaa	aggcattcag	ttgtcatcac	agaccatccc	cagccgagtg	ataatcgacc	1800
gggactgtgt	cg					1812

(2) INFORMATION FOR SEQ ID NO:967

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1804 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1804

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:967

gagtgtgcct	ccatcggcatt	ctcttttcatt	tggctgatga	ttgccttagc	tcagtagctc	60
gagccgatct	cttcatatatt	agattacgct	tgaccagact	tgggttgacgg	cgagtaccgc	120
tgcatctcgc	cgtgcttgcc	aatccttggc	aaggcgaagg	aggcttgagc	tccaaacgta	180
gcagagcgga	aagcctgtac	atctgtgggg	cagagagcat	agagcactta	tcctctaggg	240
catcaagcga	acgaacatcg	cagggcactt	ggggctgcgg	acgacgaaga	gagctgcccc	300
tctgtctcag	atacagccaa	ctctagccct	tcgctctgcc	gaggatatag	tcgtatcggt	360
ctggatgctg	cgccttgtag	gttttgagct	cgagagggat	tgctctaggg	cagactccgc	420
gccctcgatc	tgggttttca	gtcgtgggtg	acaacctctt	cttcttcaact	gaagatttga	480
ctatcctcac	gaaaagtgtg	tggaagact	gtagcttggg	atatgctttc	ttgacgagat	540
gatctcggca	tctccctctg	cactcggcat	gaagttatag	acatagacca	gggagcttgg	600
gagccgatgc	ggttgactcg	cccgatgcgt	tgcatcagcg	cgtagcattc	catggagtat	660
cgtagttag	tatgctgttg	gcacgggtag	gttgataccc	tccgcaagca	cttctgtcgt	720
gatgatgatc	ttgtatcatc	tcgctgtctc	ctctttagtg	tggcatcgaa	atttgctcgg	780
atatttcctc	gcgctctcgg	cggttcttgc	ctgtgatcga	gagcaccgag	aggggtcatc	840
gacactctcg	atggcccgtc	caatggctcg	cacagtgtct	atgcctcggg	gaagataacg	900
agtttctgct	ctggattacg	ctccagactg	acagactagg	tagcagctgt	cgcttaaaat	960
cgtctagttt	gggatcgctg	agtagatgct	ccactgctca	tctagctggg	cgatgagggc	1020
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ttcgcccttt	ctcattcgat	ccagaggagt	tgagcttggt	gatcttttgc	gtagatcctc	1140
ggcacactct	tcgaaggaga	acaatttctc	cgtacttccc	aatgcttacg	gggattgagc	1200
tctgcattca	catctatctg	tgggcgatga	atatggtatc	gtgctccac	atatccacca	1260
tattttgggt	gtaagcttga	gatttttgag	cgagaccttg	aaggcggaga	agctactctc	1320
gatcgtttta	ccaggccaat	ctgcataatg	cgtgctagct	gatgggagaa	tcctcggcat	1380
ccatgttgcg	ccccgagtag	agcttacgcg	tgctctcgtc	ttcaggtact	caatagctcg	1440
atatcggtag	tagcatagag	aggtagagct	tcgaactgaa	aattctcttt	cggcgcaatg	1500

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cagtccatcg tacgagcgag agtttggcaa ggctcttgct catacgatac tcaaagctat 1560
gagggccata atctcgggaa aggtaagttt ggtctcaggg tagtacttac ggatgtcggt 1620
cgggtgcgtc tgacgagtat atcctgtagg acgcagtctc ttacgacta gacaagtcac 1680
tgagtagttt cctactctgc tgtatttgct ctgccttggg ccttcgtcgt agcgagagta 1740
tatgacagat tgatattcac gagcatatcg gcaaaaaaac tctccagatt gccaccattg 1800
gcct 1804

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(2) INFORMATION FOR SEQ ID NO:968

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1429 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1429

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:968

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atttgagtat taaaaacagc ataatatctc tcccatggca taccaatcca gaataccgat 60
gagcatgtaa catttgcaga cgcactcctt tcaaagcgta tcgcaaagca caaaacgact 120
tcctcaatca gggtgagagg cttatcggtg gcgtccgac aggacgctga tcaacaagaa 180
atacacgaag cgacaaatgc catcggcgcc ccggcttatg acgtgattct cttattcaag 240
atgttctttt ggagacatgg tacaacctca gtgattgtgc tttggaggag cgcacaatga 300
ttcaatcacc ttttcccgat tcttgggact gaagatggaa gagtatctcc cgaccacagc 360
accatcagtc gatttcgttc ggcactgaca gattggggct catggacaaa ctattggcgc 420
agtttaacaa acaactttcc cccatcacat ttcggtcagg gaaggggtgc ttgtcgatgc 480
aagccttggt agacgccaca taaacccaac ggaaccatta cgattgaagt cgcagacgaa 540
gagaagacaa tcggagcgag gcggaaaaag aggcagagga ggattatcaa aacagggtgt 600
ccgccggcgt aaagggacgg atgaagaagc ccggttggtg acaaacaaaa gcgttatcac 660
tacggataca aaaagcattg tctgacaatg ttcaaggcat tgttcaaaag gtgataacga 720
ctgcagcgaa ccgcatgaca cgaaggagtt tattccgcta ttgcagggtg caaacatacc 780
tcaagcacag ccgtcttggc ggacaaagga tatgcttgcg gggaaaatcg ttctacctgc 840
aaacccatca ccttcaagac ggcatcatgc acaaggcaca accaacaggg cattgaccga 900
ggaagagaag caaggaaaca aagcaatcag tcgatacgga gcaccatcga acgcaccttt 960
ggcagtatcc gccggtggtt catggcggac gatgtcgata ccggggactt gccaaagacc 1020
atactcaaac attcttgaaa gcacgcgctt taatttatac agaaccctcg ggataatttg 1080
tcctcatctc taggataagg cataaccccc cttgaggagc tcgtgcagta gctccgcaag 1140
gggggattta caactacttt cactccttac tgccaccttt tctactcgctc cttttttgct 1200
aagaactcct cttccctcca tctcctatgt tgcaaaggct tcttctatat aaatcgaaag 1260
ccgaaaaggc cactcgagag gctataaaac agaggcacc acatgattcg gctcgaatca 1320
tgtgtgctt tattcttttg aagggactgt aagagacctt attgctgctt atgatcatgg 1380
ggattatact attcgtccgt atgccacatg gcatacatat atatcggcc 1429

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(2) INFORMATION FOR SEQ ID NO:969

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 805 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...805

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:969

ggatcccttag	tcctggagcgc	gattagcccc	ctgactatca	attttttcgaa	tgtgggtcatc	60
cccctatgtg	ctaaaagagc	tgatttttcgc	gctctggcga	ggcgtaaacc	gctcattaag	120
ccattgcac	agatccatct	tggtaaagt	ttgattctta	gcgaagagac	aagattagac	180
aagcaccacc	gatattggcg	atactcttga	gatagaccat	caaaagcatt	gtaataagag	240
cggtcataatt	tgcacctcta	cggcattgcg	cggtgttcca	agaaaggcct	tcactctgagg	300
cggtgcttca	aattccgaaa	gaaaatctcg	ataagccatc	ttgacgatac	agcaaggcta	360
tactacttgc	tgcaagggtg	tctatgttgg	tcataactca	acgacatcgc	catgtttctc	420
gtttagagag	gcaatatgcc	taatggctta	gtgtacttgc	cttgctctg	aacgcctgtg	480
agccgtactc	ctgatctact	agtatttgc	gatgcccatt	ttctgggagt	tccaactctg	540
aataacctca	tattttaagg	accttgggtg	gcgtactaca	aaactcactg	ggtgctgtcc	600
caactattga	gcaaggcggt	atcagcatag	ccacggtagc	cacgacgata	cttcctgctg	660
ggataggaat	agaattggcc	atcttgcac	atgtccttta	ccatcactaa	tatgcacata	720
ttcaggcaac	agagtttgaa	gtctaagagt	gtatgaagct	taacagctcc	cttcgtatgt	780
gtgttttagc	ccaatcgtat	agggc				805

(2) INFORMATION FOR SEQ ID NO:970

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1024 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1024

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:970

atgagcatga	ttttcaaaaa	tgacaatcat	caggagtcgt	ttgtctttgc	ttgtccacta	60
cttcgaaatt	gttatcgggt	gaaggcaaat	ggcgactcaa	ctgcccttgc	aggctattgc	120
cacgcacgc	ggcggggaat	acaactggcg	cagcaggata	ccgtgcatac	atgggtcaat	180
ggagctgtcg	gacttagctt	tcgtatcgcc	ctcgtaccga	caaaccctat	cagatttggg	240
gatctcttat	ggtgtggcag	ccttgtcaag	cggaggatac	ttcccttacg	aaaggggtgg	300
ggcggttatc	tttctctcgc	aatggacttg	gagcacttcg	ctttcgtacc	gactattggt	360
acggcaggca	ttacgtttct	ccctttgctg	cactttcgcc	aattccctga	cgtatgacaa	420
acagcctctt	acgaacgggt	gggcgattat	attcgtctct	atgccgacta	ttcgtggcgg	480
atggcacgaa	tgtttcggtg	gcggtctgtg	ctcgggtatg	gttcagacct	tcggatcggt	540
tgcatgagc	cacgccttgg	aactgacgat	gcgtatcgat	cccaaattcc	aatagctttt	600
ctgaaaggca	atcattgata	tttcgatat	ttgcgaggga	ttcctcagtg	atcatttagt	660
ccggtgaagg	tgggtgaatg	ccaaaaaaag	aggactgcc	aagagctcca	agctcctttg	720
acagtccttt	tcgttatatt	ggaatggatg	tcgcttacag	ctatgcgatg	tccatttctc	780
tcatatctct	gccagtgtat	ccttggcatc	tcgagtttg	aggaatacac	ccgtgctcgt	840
gtgtagagcg	gattgtccac	acctgcataa	ccgggtttca	ggcgaagttg	caaagtatta	900
cttcggagca	tcgtccacgt	tcagcacggg	ctaccgtata	taggcgtacc	ctcagcattg	960
cgagcagcag	ggttcattac	tcgttggcac	cgattactac	cacggcatcc	gtctgagcga	1020

aatc

(2) INFORMATION FOR SEQ ID NO:971

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 588 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...588

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:971

caaatatagt	tgatgttttt	tgcatacatag	atgattttctc	caagcttttg	atgaagcaat	60
caagaaaaag	accctcgaag	aggcagacaa	aaaacgcaga	atagaaagtt	taagatgtcg	120
gacagtgagg	tcatgaccat	cctgatctgt	ttcatctgtc	aagataccga	gatttgaaag	180
ctttttatct	tcaataatca	cctattcttg	tcgatccgag	ttcccacatc	ttgtctctta	240
taatcctttg	tggagctgca	aagcagggta	ggtttcaagc	tgatagcatt	tctcatatgt	300
gttggtttgg	tcaatgtact	ggcatctctt	tcatcgattc	cacccattga	aggcttgtca	360
tatcaaacga	gctcatgggc	ataggacgat	gagggatggg	ctcaaaaagg	caaaagcacc	420
atggggttgg	tttatggatt	caactacata	tgagaccttt	gcaaaataag	gaggtggagg	480
gaagaggagt	cttggcataa	aaggagcgag	tgaaaggggt	ggcagtaagg	agtgaagtg	540
ttgtaaatcc	ccccttgagg	agctgcttgc	acgagctcct	caagggggg		588

(2) INFORMATION FOR SEQ ID NO:972

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:972

tcaccggaag	tggagagagc	tatgcagtgc	gcgatccttg	gggcatccgc	ctgcattcta	60
ttatatagac	gatgagatcg	tggtcacggc	ctcggagctc	ccgttatcca	aactgtgatg	120
aatctgtcgg	cagaggccgt	tcgggagtga	tgcccggaga	agctatcttt	gtcaatagca	180
agggagaacc	tcgtatgagc	gtatcttgga	gactaagaat	tatcaggcct	gttcgttcga	240
gcgtactatt	tctctcgtgg	cagtgatcag	gatatatatc	gtgagagaaa	ggcttggggg	300
atctgctttc	ggaacgcac	ctccgagcga	tcgattacga	cattcccata	ctgncttttc	360
attcatcccc	aatacagccg	aagtggcata	tttggtatgt	tggagggcat	agatcattat	420

ttggatgaat	gcaagattcg	aagattcgcg	agaacccgaa	tatgagtga	gccaaagtgc	480
gtgagattct	ggacgaaagg	ttcgggtcgg	gaaggtggcg	atcaaagaca	tcaagctcaa	540
acttttatta	cggaaaggcaa	tagccgcaac	gatttggcgg	ctcatgtcat	gatattacct	600
atggcacggt	acaagccggc	gtagacaatt	tggtcgtatc	gatgacagta	tcgtccgtgg	660
gactactctg	cggcagagca	tcacgtatc	atggataggt	tgcaacctaa	gaagatcgtc	720
attgtttcca	gctctcgag	attcgttata	cggactacta	tggtatcgat	atgcgtaaga	780
tgcggaattt	gtcgttttcc	gctccgctgt	ggcacttctt	caggagcgcg	gtaggagcaa	840
gtgttgacg	atgcctatgc	aaaagcttta	gagcttcgga	agtgagttcc	ggacaggagg	900
tcgaaaatgt	cgtaaagact	atctataagc	cttcacggcc	gaggagattt	cagccaagat	960
ggtagagcta	ttgaagccgg	aggcgtgcgt	gccaaaggtg	agatcgata	tcaaagtttg	1020
gaaggcttga	tcaggcgata	ccgaatcatc	cgggagactg	gtatttctcc	ggcgattacc	1080
gacacccgga	ggcgtcatt	tggtaaatga	agcttttata	agctacagga	agaggactat	1140
ggcaaataat	tatttccaga	atcgaaagag	tattaaaacg	tatgagagag	caaagaaaag	1200
cgacattgat	attggacgat	ggtagcgttt	cgaaggctat	tctttcggtt	gcgaacgtgc	1260
tgtggccgga	gaggcgtttt	caatacggct	atgaccggct	atgtggagag	tctgacggat	1320
ccggttatcg	cggacaaatc	atggttatga	cctatccttt	ggtgggtaat	taggcgttcc	1380
gatgaaagca	gctgagccaa	acggcgtatc	ttgctttatg	gaagcgacag	aatacacatg	1440
gaaggaatcg	ttgtgtccga	ctattcccat	cttatagtca	ttggaatgct	gtcgaaagcc	1500
ttggcgattg	gctcaaacgg	agcagggtatt	cggctctgacg	gggatcgaca	cgagggcatt	1560
ggccaagccc	tccgcgaaca	cggttcgatg	aaaggaaaaga	taattctcga	aggaggcaag	1620
acattggctt	cgccgatcct	tacacagtca	atcaggtagc	ggaggctctt	gtcgtgaagt	1680
aatcgtctac	ggcactggaa	gcaaaaagg	ggtaccgtcg	attgtggagt	gaaggacaac	1740
attattcgtt	cgcttctccg	tgaaatataa	cgctctaccg	tgtaccatgg	gattacgact	1800
ttcatcgaa	agctacgacg	gtctcttcat	cagcaacggc	ccgggcgacc	ccaatatgtg	1860
cacgtcacag	tggaacatat	tcgtcgggct	gtggccggcg	acaaacctat	cgcggtattt	1920
gcatgggcaa	tcagcttttg	gcgaaagctg	ccgggg			1956

(2) INFORMATION FOR SEQ ID NO:973

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2086 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2086

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:973

tgccgtagat	ttccggttct	cgcttgccca	gagacgccag	attggggcct	tgataatgtg	60
tataagcttc	ataacgattg	tttatctttg	ggaggcaggc	cataaaaaaa	cggcttacgg	120
cgcagactct	cgttccggtg	tgtgcatggt	tggcacacaa	cctctacaaa	ggtatagata	180
tttgacaatg	atagaaatag	cctttccaag	cgttacaagt	cctacctcag	tttggagctt	240
cacctacgcc	caacagtgtg	gatgcttact	taaaggattt	gagcaagtta	gacttttatct	300
cacggctgaa	aacatctctt	ttcgagaggt	ttcgtatgaa	aatttcaaca	tttcgtagcc	360
gaattgtatg	acctcggcat	cagtgcgcgc	tcatagcgcg	tatcatcagc	ggtgtcaaga	420
gtttcttccg	cttcctcgtt	tggaagagta	tatcgaagcg	gacccctaccg	agttgctcga	480
aggccctcgc	tcggtgtcca	tctgectacg	gtattgacca	tcgaagaagt	tgatcgacta	540
tcggatcgat	cgatccggca	gctcagggag	cccaacgcaa	tcgcgcacatc	tggaataact	600
ctatagctgt	ggtctgcgtg	tcagcgaact	gacttcttga	aattcagcaa	tctcttcttc	660
aacgaatcat	ttttgcgtat	cgatggaaaag	ggcgcaaaaca	cgctcttgta	cccatgagcg	720
agactgctat	caccggctga	agcggtatct	gtccgatccc	gaacgcccga	cccctgttct	780
tggaagagg	agtatgtgtt	tctgagcaat	cgcggaagag	ccatctcccg	catatggttt	840
tcgtcatgat	caagaagctg	gcagaagaag	ccggtataac	gagagtatca	gccccatac	900
attccgtcac	agctttgcca	cccatctgct	cagggaggag	ctaactctgca	ggccattcag	960
ctcatgcttg	gccatgagaa	attgccacga	cggagatcta	tacccatatac	gacagagaaa	1020

cactccggct	gaaatcgaga	cctaccatcc	gcgcaatcaa	tcctatcgtc	gatccgggtcc	1080
gaagctgacc	aataaaaaat	agctcccctc	gccacagaga	gatggcaaat	ggctatatcg	1140
aattttcgtc	tttcatggag	agcatatcga	ggacttttcc	cagtcggtat	cgacttcgca	1200
ttctatctcc	agcggtaatg	tttcgaaggg	gccaacacct	cattgagccg	ttcgccgaat	1260
actcgttcag	tacggcataa	tagaccaat	actttgttcc	gcctccggta	tagttgcctg	1320
tcagatggcc	aacttgctct	tttccatagc	cttacggatg	agcagctcga	tccttcgata	1380
cgtttgctg	ccgattctgt	aggcagacct	tgttcgctcg	ctcgtagggc	cagcgtattt	1440
cgattcggat	tttcagcttg	ccactcagtc	gaattcgta	agctccaagc	gtccattgac	1500
gaatactatg	ttgcccttcc	atcctcactg	atggaagtaa	accatcggtc	tgtagtttcc	1560
attgtctcg	gttttattct	ttcgtttata	gtatagccag	atttggatgg	aattgaggaa	1620
ttttgccata	ccacatagct	tgcaggtgcg	atagaagcta	tcggatcaaa	taggtaagcg	1680
acatccaaat	ggcaagcgac	gtgtttttct	gtcccaagcc	tgaccggccg	taatgctctc	1740
tttcaaata	cgtttgctta	gccantgccc	aacccgaatt	gcaaggcaac	aagctaagca	1800
gaccacccaa	cgcaacagca	gtcccaaagc	gatgctgtcg	gagccttggt	ccatcacata	1860
gctgtcgttt	tgcccatgat	gatagccagc	gaggttaaccc	atagccaaaa	accatttggg	1920
gaatgctcag	aagccgggca	tggtgtccgag	ggctcgtgaa	cgaatgatcc	aagcagccaa	1980
tagaggaacc	accaccagag	gcaagacacc	caaagaatat	ggatgacgga	agacccaaac	2040
ggcatatcgg	catgtgccta	ctcagcgaag	aaaacagcaa	aggccc		2086

(2) INFORMATION FOR SEQ ID NO:974

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2189 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:974

gtcaactttt	ttcagtacac	gtcaaaaacc	gaaaagttaa	cgcgccacgt	tttcggtact	60
gcgaatgata	ttttttttcg	cgcgtaaatg	ccaaagacgt	cggcttcgag	gtacagatcg	120
aattcggatc	gctcttttcg	agctgacgtc	tttcttctcc	gagaagaaaa	aaggaacctg	180
tgggagtcgc	tcaccagggt	tttcttgcta	tttttgttcg	tattcggatt	ccatcctaag	240
aggacaccaa	cctatgattg	cactcttaat	aatcgtatac	atgctgatga	cgcgcccgtc	300
agtgtgtgca	ttatcagcga	gaatcgcaat	ccactgaagg	ctattcgtgg	attctggtcg	360
tctcttttgt	acccgtcttg	gggcttattg	tcatatcttt	ttcggacagg	atcagcgag	420
acggcgtatt	gtcagccgcc	gatatacaag	cgcatcatgc	tgaagcctca	ctatctgtcc	480
atccccgaag	acagttggaa	gcatgaaca	atatccagct	gaatcccatc	atgaagctgt	540
caacaacaac	tcggacagcc	ccgtcatgct	cagctcgccg	ccggatattt	cacggcaggg	600
aaggatatgt	tcgactgctt	ctttcgcgac	atagaggtgc	ccgccaccat	gtgcatattc	660
agttctacgt	catagaggat	gaccattggg	cagtcgcctg	tccgatctgc	ttatacgcaa	720
ggtgcaagag	ggcgtaaggt	gagggtcata	ttcgatcatg	tgggttcgtg	ggctacgggc	780
cgtgtacttg	gaaacgactg	cgccgagccg	gagtgggaagc	ctatcctttt	atgcggtctt	840
cttccccata	ctgtccagcc	gcgtaaaacta	ccgcaatcac	cgaaggtagc	cgttatatag	900
ggtaaaatag	gctatttggg	cggtatgaat	gggcccagtc	ctattactcg	ggcaacaggc	960
tcgggtctgtg	gcgcgatact	acttccgtat	gatgggcaat	gtggtggccg	gtttgcagag	1020
cagtttctct	tggactggta	tgctgtatcg	cgacgagtca	tcaatctctc	cggtacttct	1080
ccgatctgcc	gatacccgtg	tccgacgagg	gtgtgaagat	acagctctac	gctccggccc	1140
cgtggggcaa	tggcgtacca	tcgagcaggc	caccattact	gtatcgagcg	tgcttcgcaa	1200
catgtctata	tcgagactcc	ttactccttc	cgaccgaagg	actgaataat	gctctcatca	1260
cggcagcttt	ggccgcacgc	atgtacacct	gctgggtccc	aaacgaagcg	atgcccgctc	1320
gcccaagtgg	cgcccttctc	ctatgtggag	gatctcttgc	aggccggtgt	actgtacacc	1380
tctataccaa	cggttttctc	cattccaagc	tgataatggt	gatagtcagg	tggttctgat	1440
cggctctacg	aatatggact	tccgcagctt	gaaaataact	tcgaattcaa	tggatatcat	1500

tatgacgagc	ctactgtccc	cgattggaag	ccatcttctt	cgaggacttg	ttgcagagcg	1560
aaccgctcat	ctcaaacgct	ggcgaagag	aagccggata	aaaaaattca	gcgaatcttt	1620
gttcgccttt	tctctcctct	gctctaaccg	atatgctttc	cgactaaagt	atgatccatc	1680
gtccactatt	cattatccca	tcctgtatcc	ctcatacaat	acacgacaat	actcttttct	1740
ccgccgatga	gcggagtcgc	ttccctcctc	atacgcgagt	ttgattcgta	cactagctcc	1800
cgatcggcag	ctctgaagaa	agtacgcagt	ctgctgagcc	gttttacgga	gttgggatgt	1860
ttgatcgcg	caaaaacggt	atgcacggac	ttttgcgcaa	catggaagt	gacgcatagc	1920
ctcctgtgag	atcgggctgg	ggatagaggc	catcggagca	tcctcttcta	tcgtccggcg	1980
atgaaggggc	tgacgagacc	ggaggagatg	ccgagctcat	gggcgaagat	gtggctcgcc	2040
tgatcgacct	cctgctgaaa	catcggagat	ctacatgcgc	aatacggcta	tcaatacggc	2100
caacttcagc	acttctcctc	ctccatcgcc	gaagatattc	gcgtggtgct	gctcatatcg	2160
ctgaccgttc	ctatctgctg	cgccaggcc				2189

(2) INFORMATION FOR SEQ ID NO:975

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 946 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...946

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:975

gctgagaaat	tggaggcttt	cggccgtctg	ttggatgttc	tggatacctg	cgagagcagt	60
gtccatggga	tcggaaacag	acgaacgaaa	gcctccgaca	aatacaatag	aagagggtcta	120
tgagctgagc	gaagctctct	tgggcgatgt	ccggacgaca	ttcgcaagga	gcttggcgat	180
gtcctgctgc	acgtagtttc	tatgccaaga	taggagagga	aaaaggccag	ttcgatattg	240
cttcgtctgt	catgctctct	gcgacaagct	gatctatcgg	catccgcata	tctaggcaat	300
gtacaggtgg	agaatgctgc	cgaagtggta	cgcaactggg	agcactcaaa	ctccgcgaaa	360
aggatgggaa	caagtccgtc	ctctccggcg	tgcgaagtct	ctccctgctt	tggatgaagag	420
ctatcggatg	caggagaaag	cgcaggcgta	ggtttcgact	gggagcaacg	ggagcaggta	480
tggccgaaag	tgaagaagag	ctgaacgaag	tccgaggggc	tattgtcagt	gaagatccca	540
tgccatggaa	gcagagtctg	gcgacttgct	cttcgcctgt	gtgaatgcgc	tcgtctctac	600
ggtatcaatc	cggataatgc	tctcgaacgt	accaataaaa	attcgacagc	cgtttctcct	660
atgtggagca	gcgtgccaaa	cagcaggcaa	agctctcaga	gatatgacct	tctcggagat	720
ggatgcgctg	tggaaagggc	aaaacagaaa	ggactctgac	ctcgttccaa	gcggaaaaag	780
ctattttgta	agcacgattt	agcattatta	ctataatgaa	cgaagacatt	aaaagaatac	840
ctcggcatcg	gaatattcgg	ccagcaatat	ccaagtattg	gaggtctgga	agctgtccgc	900
aagcgaccgg	ccatgtatat	aggtgacatc	acgaaaaggg	attgca		946

(2) INFORMATION FOR SEQ ID NO:976

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2623 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:976

cggcaggatt	ggtcgatttc	ttgcgtcgag	ccaaactcag	ccataccacg	cggctatcgt	60
agctacggct	gcagcagtgc	ttgtccctat	ccagatggcg	gccagaactg	ggatgatcat	120
gatcgctcgg	gacgctatgt	gggacgcatt	tcggtgtcaa	ttacttggag	agctgcgacc	180
ccaatgccgt	tattttacct	atggcgataa	cgataccttc	ccccctcgtt	atgctcagga	240
ggtagaggcg	ttcgtagcga	tggtccgtgtg	agcaatctca	gttacttggg	agcaactggg	300
atgtgcgcca	gatgaagcag	caagcctatc	agtccgatcc	gctccattga	agaatatgaa	360
tgaagccttc	atcagccgga	atgcctttgt	tctgtcgatc	ccaattactc	tgccagagat	420
ccggagctga	acctccattc	atccccgggt	gcggactcac	ggccgatggc	aagcccatca	480
tgatgctgtc	gaagccatga	aaatagccgc	tcgtccgggt	ccttatggca	atgggtgtgag	540
ccgtctgaga	acctgtatct	gcccgtagat	tcgcaagcat	tggggcagcg	tttggcgatt	600
cggctaagggt	gcatgtccgt	caaaccatcg	atctgtcttg	gccggtaagg	gcgtcctctc	660
attggccgac	ctgaagcggt	ctcgattgat	agccaataac	gaatggaagc	gtcctatcta	720
ttgggctatt	acgtcccagag	caattctttc	tccaacctgc	cggactactt	gcgtcagacc	780
ggtaggccaa	tcagtttgtg	ccttttaagg	cgcgccgcgt	aggcgataac	atcatgtgga	840
aaagacctat	accaatgtga	tgaccaagtt	ccgcttcgga	gggccaacaa	tccaaggtg	900
tacttcgatg	cagatattcg	caattccacc	atacctatcg	cgtagctgtg	ttttctccgt	960
tggcaaaggc	tctgctcgaa	gaggcgatac	cgttcgtgcc	cgtaagggtgc	tcaccaaattg	1020
cctccaagaa	tcagtcctga	agccgtgccc	tatgattatc	gctcgctggt	attggcacia	1080
ccctgtacga	tcagatatg	gtggccgacg	cagaccggat	agtcaagccg	tggcaggctc	1140
ttcgatgcgt	acgtttaact	ggttcttccg	cctgtcgaa	ccaaattcat	gcaaattgctt	1200
tccgaaggag	agatcgacag	ggagagaata	cggttgtctc	ggctcttcgg	ctgagtactg	1260
cttataatag	caaatgttgg	atgaatatct	gcccgtgttc	cagaactatt	ataagatgct	1320
ctaactgatg	agcagggtaa	tagcaaacgg	caataaatgc	agctcagact	cgagaacgac	1380
ttatctgccg	tgtgcccatt	tggtaccggg	ctttgttccc	cggtgccacgt	ggcgcatctc	1440
tgccaaagaa	ggaaaaagca	tctatctgac	ttcgatgacg	gtcccatacc	ggagataaca	1500
ccctgggtat	tgataacgcc	gatgaactcg	gggtgaaggc	cacgttcttc	tgtgtggcgg	1560
ataatgtggt	cgctatcccc	atctttttgc	cgagatacag	cgctcgtggtc	atcagggtggc	1620
aatcacactt	tccaccatct	gcaagggtcg	aaagtccgta	cacgtactat	ctgaaagatg	1680
tggaagaggc	tgaccgactt	atcaattctc	gcttcttcga	ccgccgcgtg	gccatcttcg	1740
cttcatgcag	acctcctg	ttagaatcac	tacgacatta	ttatgtggga	tgtgatcaacg	1800
cgcgattata	atgtcgctt	tcacccgata	ccgtcttttg	ttcggtgggt	cgctatgcgc	1860
gcacggctcc	attattacct	tccacgactc	cctcaaagcg	gtccccaata	tcagcaggcc	1920
atgcctcgcg	ctgtgcgctg	gctattggat	gaaggctata	cttcaaattgt	ctgggacgacc	1980
cggccgacta	agccgtttac	ctgttttttt	gtccgatgat	tgctcttacg	gaagacggat	2040
ctcccaacta	cctttcgctc	attacggcga	atactaccac	tccatacacg	gtgcgtgtcg	2100
tgagagcaac	atgtattcgt	tcatacggga	ctgttgccac	gtttggaatc	tttcgacctt	2160
ccggtacttt	gtatctcttt	gaagtcggat	tcggaacggc	tctcatgcgc	tactgactct	2220
ccgcgaacaa	cgatgtcggg	gtctctccat	ccatactctg	ccattgagaa	atttcctctc	2280
gaaagggatg	tatatgagca	tctcgctttt	ctgtgggaat	ggctgatgaa	gacaaactcc	2340
tgcaaagtct	ccccatgcac	cgtggggaat	ggattgtgaa	atatgtcccg	gcttcacgtt	2400
gacaagatag	catccgatct	gaccgatttt	acattccgca	agcctatcga	ctcatctatt	2460
tcgatgcttt	ctctcccgaa	gctcagccgg	agttgtggat	gaagagatct	tcacccgaat	2520
ggtggccgca	tgtcgatccg	gagccgtatg	gccacctact	gcgccaaagg	cgagatcccg	2580
cgtcggctca	cacgtgcgga	ttccatatgg	aacgcggggg	atc		2623

(2) INFORMATION FOR SEQ ID NO:977

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3185 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3185

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:977

cgtaacgatac	acggaagtaa	tggccgaaga	agaagtgcgc	attctcatct	attgtcctgc	60
cgataattcg	aatggggtag	tctgcgcacc	gcctttggat	tgactctctt	ggtctctgcc	120
tcctgctgac	tgaccaccat	gtccacgcaa	atlttgccgaa	ctgcatcttc	gtgtgtattc	180
cgaataagct	cgctccccct	gaatcagagt	gttgcgcgta	ttcatggata	cattgcccgc	240
ttcgacagtt	tgattatata	atcttcctct	ccttcgaaag	ccaacttcag	cttcttgcac	300
cgaatcgaa	cgtactctct	gtattatagt	tcatcccgaa	attagcttcg	taccactga	360
tgctgcacg	ttggtttgga	tcttttcgct	gagtcgaaat	aggaatgctt	acgtgcattt	420
tcgggcagag	aggggttatt	tttgcatctg	tcttagcccc	catggccacc	tcagccgac	480
cttgagtacg	agtttgaccc	caccgggacc	gaagagcttc	tcggccggac	cgagatcgaa	540
gacatttcca	aaggattgaa	cgccttctta	ccctcctgct	gagcttcagt	cgcttctttt	600
ccatgaagta	acggcgggat	gaatcacgct	gcatatacgt	aggatttctt	cgggtgtgaa	660
gggtatagga	ctgcccagag	gtttatccca	agcttgggtca	caagcagata	agtattggct	720
ttctcgtcgt	aaataattcg	gtgcggatgt	tatccggagt	cttcagatcg	agtggatagt	780
tgccccaga	taacggtagt	ctttagcttg	ggcttctctg	acggggaaac	gagcgtatcg	840
gccggagtgg	gagttgtata	gtgattgttg	atggcagtc	ggcaggtagc	gagccactcg	900
ccggacgcca	tgtgacaaaa	acaaggccgg	cattatgggc	agtagagctg	caagtagccg	960
aatgggtttg	tttttctttt	cattatcaag	acaccctgta	tccttctttg	tttgagaaaa	1020
ggtataact	tcgtaatgct	cgcttgataa	tatcttcgac	agctaaggac	gaatcctcga	1080
gagaatggac	ttgacgctt	tgcgtagatg	cggatcggga	aagccaacat	ctttagagca	1140
ctgatggctt	cttctcccca	agctatggta	tgctagacgc	atctcctaca	gccgtccgtg	1200
cagacaagat	ctcgtctgag	gaggttccag	ttgtatctta	cctttcagat	ccacgatgat	1260
acgctgagcg	gtctcagacc	gatgcccttc	acggctttca	gcgcacccgc	ctgccctgtg	1320
gtatgagtgc	ggccagctct	tgaggagcat	aggaagatag	gatgagctgt	gcgtcgtagg	1380
cccgaacccg	ctgacagatg	tgagttggcc	gaagagcgta	cctcttcttt	cggtggaaaag	1440
ccatacaata	aatgggcatc	ttctcggatc	gttgtgtaat	ccaaataagt	ccctctttct	1500
tccctgata	ggcagaatag	tggtgagcga	gacattcaca	tcataaccca	ctccgcaca	1560
ctcgatcaga	ggtttgtcgg	cgtcaaaccg	actattgcac	ccttgagata	ctctatcttg	1620
catgctacac	aaactgaggg	ctttatgtat	gccttcttga	atcactggcg	aaacatccca	1680
caaagccttc	ggtcaaatta	cttttacatg	actttctcca	aaagccacat	agtgttgttt	1740
attactatag	gaaactaacg	caaagtaggg	aaaatgttgt	atcaagtccg	tttgtaacag	1800
ggcaatcgca	tttagccact	aacgtacatc	taaagctcat	gattgctaca	ttcaattatc	1860
aaacaagtac	gaattcatat	tgtcagagat	tcaagattca	aattgagacc	atgcacaaaag	1920
aggctgttct	ttctgctcgc	ttgttcccg	tgtgtttttg	ccattctcgt	ctgttttgca	1980
gcttggggat	tagtcccctt	tcccgacccc	gagggcaatt	gccctcgagg	gacggtcggt	2040
tagcgcctat	tttgcgcctg	aagcacaaga	agccccggca	tacgcttgag	attgtaggcc	2100
atagcttaag	gatattcccg	gtatgtgtct	tggctaactc	tcgatagcga	catcgtcgcc	2160
acagaacct	cgtcgaatac	taccgaaggt	acgttctatc	aagcacgcgt	cttactgatc	2220
atccgattga	gtgtgttttg	actttcactt	gagccttgac	ctcgatgagc	cttgagcata	2280
attccatcta	tcaaaccctg	acggccaaat	actccgaatt	cttcttgctg	caatagcctt	2340
tgctggccaa	aaactaatte	ctcccgcaaa	cttggacttc	ttgatcagct	caggtaatat	2400
accgtgtctg	cacaattagc	cgaggctcgt	accactgttt	ctaccaaacc	tgctcgtccg	2460
tcaagacgtg	cttcttgtat	ccataccgat	agtgcctgct	ttgcgtaccc	aacgagcctc	2520
cgagctctact	cccggtttgc	cactcttggt	tcacaatgat	aagcctcctg	gctgtgtacg	2580
agcttctctc	gaacgagatc	ctctcgatct	tcagccactt	ctatgaccac	gttgccatca	2640
ggggcgaagg	actatccaca	atgctcgcat	caacgatggc	gccttgatcg	atacgtgat	2700
gccgtgtctc	ttgaactgct	tggtcagctc	ccgaaggagt	ttatcataat	ccccaaagcga	2760
gtgagttcac	tacggaaacg	actgatcggt	ctaggtcggg	ggaagggaag	ccgaggtcca	2820
agccaaggaa	ttcactgaaa	agaaggagtc	gttgatgcac	tcctcaacct	cgtagtcaat	2880
caaaccatac	cagtctccaa	gagtagaate	ttgaacatca	acagcgcac	gtaggcaggg	2940
tacctatggc	attctgtgtc	ttgggtgtat	ctctgttctc	cagtgtgcga	taccacgcca	3000
atcaaaaccg	gcattgtatt	gacgcaggaa	agagtgttca	tgcatctctt	gcgaacctga	3060
gtgtagactt	gacagtttgt	ttggtagcat	atlttgctc	ttgtttatac	gtgtaaaaaa	3120
ctaaatatta	ttgataacgc	aagcaatgca	ggcaaatatg	tcgcaaaaat	gccgtgcaat	3180
ggtct						3185

(2) INFORMATION FOR SEQ ID NO:978

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1249 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:978

aagagtcgct	attggccggt	gatcaatcga	gatatatcct	atctgcaaag	aaggaactgt	60
acgacatggc	acctctggcg	cgtgtgcctc	gcaaaggggtg	ggcccgcatac	cgaggagtat	120
acgtccggaa	gagaaagcca	agcgaatatg	ccgttcgggt	cattgggcag	tcgtaccatc	180
ggcagcgttt	acggatgatg	gaaggggggtt	tgtcacaagg	gaaaaacggt	atagaactct	240
tctacacaag	cagctcaggg	gagaaatagg	caaagccagc	cgtgtgtatg	taggggacga	300
agaatactga	atacgataca	ggctcccaag	cgtggctgcg	atgctatacc	actctcgaca	360
tggatatgca	gagcatagtc	gaagtggagt	tggcagcaag	ctcgaagagg	tgcagggaga	420
aagtgggaacc	gccatcctca	tgaggtagct	acagggcagg	taaaggctat	caccaatcta	480
cagcgcacgc	ctccggcgga	tatatcgaat	ccaagaacta	cgcagtagcc	gatatgtcaa	540
acccggttct	acgttcaaga	ccgtgtcgat	gatggtagca	ctcgatgcgg	cattgtgcat	600
ccggaggaca	tcatacgaac	gggcaatggt	ctcttctcgt	aggcaagcgt	actgtaagag	660
accataatgc	acacaaagga	gggtatgcc	ccttacggca	gctcagacga	tttggtactc	720
aagcaacgta	ggcgtgcca	aatcattctc	aaaggctttg	cccacgatcc	cgacaaatac	780
gtggggcggt	caggcgaacc	ggtatcacgg	acaagttccg	tctggaaata	cccgagaagc	840
tccggccgta	gtgcgcaagc	gtgccgacaa	tcttgaccgc	tgtatggcac	gacccttgca	900
tggatgtcat	tcggatacga	aacccaaatc	cgccgatcca	tacattggct	ttctacaatg	960
ccgttgccaa	cgggtgtaga	tgatgcgtcc	ctacttcgta	acgaaagtga	tggatagagg	1020
ggaggtcgtc	aggagcaccg	gccggtagta	ttacgcgatt	ccatctgcaa	gcactctagc	1080
ttatcgccat	acaggatatg	ctctcgaacg	tagtggccaa	agggaccgct	cgccgggtcaa	1140
aagctctacg	gtaaacaatca	gcggcattga	ccggtgaagcg	cagatctcac	agggcaaaaag	1200
cgtttatcgt	gcaggtggca	ccatgacttg	gtattctttc	tgtggttat		1249

(2) INFORMATION FOR SEQ ID NO:979

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 798 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...798

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:979

aagccgagtc	caaaccgctt	tattacccca	tggcaggtac	tccgtcacac	acgttacggt	60
tgggatctat	catctggcca	caggtaagac	cgtctatcac	aaacgggtga	acccaaggaa	120
aaattttctga	cgaatttgag	ttggagtcgg	acgaaaaatat	cttgtatgta	gctgaggtga	180
atcgtgctca	aaacgatgta	aggtaaattgc	ctatgacgct	gagaccggta	gattcgtccg	240
tacgctttttg	ttgaaaccga	taaacattat	gtagagccgt	tacatcccct	gacatccttc	300
cgggaagtaa	caatcagttc	atttggcaga	gccgtcgcga	cgggtggaacc	atctctatct	360
gtatgatact	acaggtcgtc	tgatccgtca	gggacaaaag	gggagtgagg	ggttacaaac	420
tttgcaggct	tcgatcccaa	ggaacacggc	tctatttcga	aagtaccgaa	gccagccctc	480
tcgaacgcca	ttttactgta	ttgatatcaa	aggaggaaag	acaaaagatc	tgactccggg	540
tcgggaatgc	accgcactca	gctatctcct	gatggttctg	ccataatcat	atttttcagt	600
cacctactgt	cccgcgtaag	gttacagtga	caaatatggc	aaaggtctc	acacactctt	660
ggaggctaag	aaccccgata	cgggcttgcc	atgccggaga	tcagaacggg	taccatcatg	720
gcggccgatg	ggcagcacct	ctttattaca	agctcacgat	gccgcttcac	ttcgatccgg	780
caaaaaatat	gggggccg					798

(2) INFORMATION FOR SEQ ID NO:980

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2111 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2111

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:980

tgcgctgaat	tcctccacct	ctatagccgt	tttgacctat	ctgttttttg	tattcatata	60
tctcttggtc	caaggagtcg	atagatttct	atcatgatat	gaggtataag	ccggaataac	120
cctcacggat	agtcctaaaca	cagataagca	cgcaccaa	tcgttgaaga	atttggtgcg	180
ttccttatct	attctactcc	ttaaattggt	tttatgccat	gcattttata	tataaataga	240
atttggttgg	atatttattg	aatcagttt	atatatagat	caaaaacgat	ctattacaaa	300
tcgaaaatga	tttatataca	gatcgttttc	ttatctctca	aatcatgtt	tcgatctgaa	360
aaagttcggt	tctcactttt	ttgtcttcaa	aaccgtttcc	atttacgtgc	ttatttgga	420
tgattctaaa	ctcatcttca	tgttgaaaac	tttttttggc	acgtggtttt	ccccatacag	480
gatgatacaa	acaaggagtc	tttttctcct	tgcatggttt	ccctaattgt	ttgggcgagg	540
agagttcatg	gggataacag	acagtatacg	aatggctttt	gctgctatgg	gctttcaagt	600
tgaaattttt	cgatctgaaa	aaatgctctg	acaaacaaaa	cttcgatatt	tcgcttacat	660
cgagttcatg	tcaggccggt	ggtgccgaat	gtgtgcagct	gacaaattgc	ttccggatat	720
ttagcattaa	tcggagaata	ctatatttgc	gaccgaaaac	aagagatcac	ttacggaacc	780
actatttatc	agccgatcgg	gggagcacca	atccttcggt	tgccgatatc	ttcgtgcaga	840
tagagccgtc	tgctctctgt	agtatgtttc	ccgactcatc	tctgacgctg	ttaggacga	900
atctgtggca	tagaccacaa	atagaaaacc	aatactaata	tgaaactttc	atctaagaaa	960
atcttagcaa	tcattgcatt	ctgacgatgg	gacatgctgt	gcaggcacag	tttggtccgg	1020
ctcccaccaa	gggattcgca	tgtctgtcac	tacaaccaag	gccgtaggcg	aaaaaatcaa	1080
ttggttggtc	attccataga	gaagaaaggc	atctggatcg	atctcaaggg	gatgccactt	1140
accaacaagg	agaggaaata	accgtattcg	atgaggatac	cacgaataca	cgatcgggac	1200
gcaaaccctc	actatctatg	gtaatcgacc	cgattgggct	gtcgatctac	cgggtgcaacg	1260
gctgtcgatg	taacaaaaac	cctaattctga	cctatctcgc	atgcccga	aataatctga	1320
aatattggac	ttgacgcaaa	acccaaagct	gctgcgagtt	tggtgcgact	ctacgaaata	1380
gaaagtttgg	acctgagtgg	caatccggct	ttgatcatcc	tggtctgtgac	aggaataagc	1440
tgactgagct	gaagaccgat	aacaacccca	gttggccctc	ctttggtgtt	ctgataataa	1500
cctgacggag	ttggaactcg	tgccaatcct	cgtctcaatg	atctttggtg	cttcggtaat	1560
cggatcacaa	actcgatctg	agtgcgaatc	ctctattggt	aacacttttg	tgagtgcaa	1620
tgagctttcg	accttggtac	tttccaagaa	ttcggacgtt	gcttactttg	gtgttcacg	1680
aacaaactta	catccttgaa	tctgtcgggg	gtgaaggact	gagtgttttg	gtttgtcatt	1740

ccaatcagat	cgcagggtgaa	gaaagacgaa	agtgggtgaat	gctttgccc	cactatctcc	1800
cggcgcaggc	gctagagcaa	gttcgctcgtt	ngaacacctc	aaggacactg	atgagaagaa	1860
tactgtaccg	taaaggatgt	ggaaaaagct	aaaagtaaga	actggcgagt	attgacttca	1920
acggtgattc	tgacaatatg	cttccatacg	aaggaagtcc	acatcgaact	tggcagtaga	1980
tgctcccaact	gtcaggatat	atcccaatcg	gtaggaagat	atgcgctcgt	cgagatcccc	2040
gagtctcttt	tagggcagaa	gctgctttat	acgatatgaa	tggggtaaaa	gtctatagtt	2100
tcgcggtgag	t					2111

(2) INFORMATION FOR SEQ ID NO:981

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2666 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2666

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:981

cagtatcaag	ggaaaaagact	tcatagtata	aagggtgggg	gctttataga	taaagggtag	60
agggttttacg	gtataaagta	tggaggcttt	atagtataag	ggtagagggt	ttacagtata	120
aagtatggag	gctttatggt	acaaaaggcaa	aggcttcacg	atatgcccta	taggtcaaat	180
tcttacattc	cacagaatac	agaaaacggg	tgtttttgct	ccattgccat	atatcggttt	240
gtatgacgac	ccatagtcgg	acaaaagcta	tgctgtcaat	cttggcaaat	ccccttctct	300
ttcttggtcg	atcgaggagg	ggattactgt	tttcagtcct	cgtacggcat	cttgagagggt	360
gaatttatcc	gatggtagt	ctgcttttga	agatccggct	atcagccggt	agtagggctt	420
ataagacgat	aatgtactat	tatatataaa	aaagatggaa	ttgtttactc	cggttcggtc	480
tttttatcgt	tctttgtgtc	agtctatatt	tccgtttttc	atctccggac	gaaaaggggg	540
gctgcctaaa	tcctacaggg	cggtagcatg	taaggccggg	cctcttcctc	tacaggcaaa	600
tggatggcat	actaaacgat	gaatatagac	aagcatcatg	aacagggttt	caaatacatt	660
gccctgcatc	ctcgtggggg	ttgtacctgg	ttgtatcgg	cgagtcggac	tgtggcacaa	720
aacgcctccg	aaacgcggta	tcgtacgata	cggataccgc	cgtactctcc	gaagccgatg	780
tgctcggatc	gctcttagtg	agaatgccac	agtgaagtg	gccgatattg	atggcgcaaa	840
caggaatatg	cacgtagggc	agcacgtgcc	gatctcttcc	cgaagtagac	ctcaatggcg	900
tttacagcca	tacgctaaag	aagcagggtc	ttatatagat	atgccgggtt	tcagcagtag	960
cgaaggatc	gaaatggggc	tacacacaat	acgcaaggag	gggtgaacgt	ctccatgcca	1020
ttggtgtcgc	acagcttttg	aaaagcattg	ccatgaccgg	agaacagctc	gatctggcct	1080
ggagaaaagct	cgcagctccc	gaatcgattt	ggtggcagag	gtgaagaggc	ttacctcagt	1140
gtattgtttg	ccgaggactc	ttatggcgta	ttcaaggcag	ctatgacaat	gctctggcca	1200
attataagaa	catatccgac	aagttgatcg	tggacttttg	gccgagtagt	ataagattcg	1260
agccaatgta	caggacgcaa	catcgagcct	aacctcttgc	aagcgcagaa	ctccgtagcc	1320
cttctctctg	gcagctcaag	gtcctgatga	gcattggaag	ggaaactccg	atagactctc	1380
cgggttcattg	tccgactata	aagaacaagt	ctataccggc	tttttgccgc	cgatacgctt	1440
atttccaaca	actcctccct	gcgtcagctc	atatacagcg	tcgtctgggt	gtcagtgacg	1500
acaagctgaa	caagtacagt	tcctgcctac	actcaatctg	ggagggcagt	acacctattc	1560
gctcaacaca	acgacatcaa	attctggggc	gagggacaac	gctggacgcc	tttctcccca	1620
tatcgctcag	cctgtacatt	cctatatcca	atggaggcaa	acgtcttaca	acgtgaagca	1680
aagtgcctta	tcgatccgtc	agatcgatct	gcaacacgac	acatagagca	atccatccga	1740
atgggaatca	agaacccaaa	tgacgtctgc	gtacctgtat	gcagagattt	gtggcctcgg	1800
aagaggctgt	ccgagtgcag	aaaagggtga	tcagatagca	gagaaacgct	atcagacagg	1860
cgaggcactc	tcgtcgagct	caacgatgcc	gatgtggctc	ttttgcaggc	tgactcaatt	1920
ataatcaggc	catattcgac	tttatgaccg	caaaggccga	ttggacaaga	tgaacggcat	1980
ggggattccc	gaacaatgag	cgtaaaaaga	aataagtaaca	aaatacacct	gtatgataaa	2040
tatgaaaaga	tcgaatacct	gggcagtgct	atcctcctca	tagtcctgcc	gttcctcatt	2100
ctcacgactg	caatggcaag	aaagagagcc	ggccgtctgc	tgctgattcg	gcagcttggc	2160

agccaaattg	gtggagacga	ctatagtga	gaccgacacg	ctgaagaggt	actgagtttc	2220
acagctaccg	ttcgggccga	agtgaccaac	aacatacccc	tcagatgggc	aatagaatcg	2280
tacgccttac	ggccgaagta	ggtatcgagt	gggacgcgga	caggtgctcg	cagagttgga	2340
tcggagccaa	ctaccaggc	caaagtacaa	ctggagaata	cgcgacacaa	tttccagcgt	2400
aggatgagct	gtacaaaata	ggtggcatag	ccaaacagca	gtgggatgcg	tcaaaacgca	2460
gctcgacgtg	gccgagacta	cttacaacaa	tctgctggaa	acaccgtgct	ccgaagccct	2520
atatccgggtg	tgattaccgc	acgcaatttg	atagcggcga	tatggcttct	cccacgaaac	2580
ctatctatgt	ggtagaaaga	tagctcccgt	aaagctccgc	atcgacgtct	ccgaacagta	2640
tttctccgcc	tgaaaaaggg	tatgcc				2666

(2) INFORMATION FOR SEQ ID NO:982

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2260 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2260

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:982

aatcgcttc	gaactcggnc	cccagaccct	gatagctgga	atctacacat	tccgtacagg	60
tctcaaaaag	ccataaactg	cggccgtatt	tcattatctt	gttcataat	catggactat	120
tatgaataac	gatctccaat	ttactatgta	gctaagaccc	tttatgggtt	ggaggatgtc	180
ttggctgccg	aactaaagcc	ttgggtgctg	aggaggtaac	cgtcggccgg	cgtatggtoa	240
gttttgagga	gataagagga	tgctctatct	tgctaattct	cggttgcgta	cagcctgcgc	300
atattgaaac	ctgtaataac	tttccatgcy	aagacgacag	atgaatttat	gaaaggctca	360
gacttttcga	ttggacgacc	gttatctcat	cgatcaaact	ttctccattg	attccgtcgt	420
ttattccgat	tcgttcaaga	aagtcaagtat	ataagttatc	gtaccaaaaga	tgctttgggtg	480
gattttcttca	tgatcgtgag	ggcaaacgtc	cctctgtccg	gctctccaat	cccgatattt	540
actgaacata	catgtgtcgc	acgaggaagt	aaccctgtcg	ctcgatagtc	gggcgatagt	600
ctgcacaagc	gaggctatcg	tggtggccgaa	acgactgtcc	tctaaatgag	gtgttggtcg	660
ccggtatctt	gctcaaagcc	ggttggacgg	tagtacggat	ttgatcgatc	ctatgtgtgg	720
atccggaacg	ttcctatcga	agctgccctg	attgcatgca	atattgctcc	cggtatctat	780
aggcaggctt	tgctttccag	cggtgggccc	atttcgatct	cgatctatat	gatagttggt	840
ccatgacgac	agtgcggaac	gtgtattcga	tcatatcatc	taggttccga	tattttgcca	900
caggccgtgg	ctgcggccag	aagtaacgtg	ggcgagccgg	tcttggcagg	tatatctctc	960
tgagtgtcct	tcccatgcag	agcgtccgaa	gcctgaatcc	aaggctatgc	tggtgatgaa	1020
tcctccctag	gagaacgtat	caaagtggag	gacatgcagc	agttgtatac	catgatcgag	1080
agcgactcaa	gcataattat	gcaggttgct	ctgcatggat	tctggcttca	agccggagca	1140
tttcaatcat	atcggccttc	gtcagttctca	tcgagaaagt	tgatgaatgg	agctttggaa	1200
tgtgagttgc	gaggttatga	actcttgagg	gacgacgcga	ttcatttgcc	gaaagaaaaa	1260
gtcgtcgagc	cgaagagaac	aaggcgtagg	acggagaatc	gaccgtcgtg	acgtttctgc	1320
cggaggga	aacgctccaa	ctccatggat	cgagaaaaata	agtctcctta	tcttctcctc	1380
gtcctgataa	gcctttcaga	acttccgata	aaaggaaaaa	aagcataatg	atgagcagca	1440
acgagaggct	cgctggccga	acgatagggt	cgatcttcgg	atgaatctga	aagaggacct	1500
cgaaatcct	cttcaaagcg	attcaggtga	tccgcaacga	tgaataataa	agaatagaaa	1560
atcaaataaa	tagataaatg	aagaagacaa	tcttccaaca	actatttctg	tctgttttgc	1620
ccttacagtg	gccttgctt	gttcggctca	gtctcctgaa	acgagtgtaa	ggagtttact	1680
cttgagcaac	tgatgcccg	aggaaaagag	ttttaaactt	ttaccccgaa	tacgtggctg	1740
gtttgcaatg	gatgggagac	aatttgtctt	tatcgagggt	gatgatttag	tttttaataa	1800
ggcgaatggc	aaacggctca	gacgaccaga	ttttctgctg	ccgatctcaa	tgactctatg	1860
ccgaggggatg	caaatttcag	acgactgatg	ctttcccttc	attccgcaca	ccgatgccgg	1920
acggggactg	gtcgttctat	ttaccaagg	aggattagtc	gattcgatat	gcttgctcga	1980
aagggtgactt	atcttttcca	taccaatgag	agacggcttc	tttgattttt	tctcctgtgg	2040

gagaccgtgt	tgcctatgca	gaaaccataa	cctttacatt	gctcgtggag	gtaaattggg	2100
agaaggttgt	cacgagctat	cgctgtgact	atcgatggaa	ctgagactct	cgtataggcc	2160
aggccgtaca	ccagcgtgaa	ttcggtatcg	aaaaaggtac	attctgtctc	caaaaggagg	2220
ctgccttgct	ttctatcgaa	tggatcagag	tatgtgaagc			2260

(2) INFORMATION FOR SEQ ID NO:983

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1318 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1318

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:983

aaagtgtccc	agctgatacc	ggcaagcatt	gatctcgatc	tcgatcgaac	gtccaccacg	60
gcacaacgaa	tacagaggcg	aacgatgtca	tacgtttact	tgtgcattat	agggagagac	120
gcgaacgagt	ctgtgtaccc	cattctcctc	ttgagaaatc	cgtaggccaa	attgccttcc	180
acctgcatcg	tcacagctta	atacctgctt	cgtctccatc	ctgccagttg	gttatcgta	240
cttgaacccc	tgcttgctcg	cccaacgctg	atacatagcg	accagcatgg	aggccagtct	300
tggtctctcg	ttctctctgc	accggcattc	actttgagca	cggaccgaag	tgatcctctt	360
cggatcggag	catattcttc	agctccacct	ctctatcagc	cggatggcat	gagcataggc	420
ttcatccacc	tcctcttcgg	tgatataccc	tccttgcatg	attcataagc	gagcttcacc	480
tcctcggcag	tgtgtcgatg	gcacgcgtagt	agcctatcca	gctcttcagc	tcctttcacct	540
gcgcacgtgt	gcctcggcac	gcttattgtc	ctcccagaag	gcaggatctg	tgtgcgcagt	600
tccttcctctt	ctaattggat	acgtctgtta	ttgacgtaaa	gataccccct	cagcgcatca	660
cggcgctcca	acagagaatt	cagttgtcta	tagtaatcat	cgatgattat	atgagttttg	720
ttagtttttg	cttcgctcgt	ggccgaataa	catctgccga	aaaaaacact	gtgcccaagt	780
gcacccgcat	gcttcgggga	cagtacattg	gaaaacgagg	ctcaaaggta	cattttttcga	840
tggtcttcggc	atagtgttcg	ttgatcactc	gccttttgag	ttcatcgtct	cggtcagttc	900
gcccttctcc	agtgtaaaag	gctcggcgag	ggcgtaaatg	acttcacctt	ctcgtaagca	960
gcaagcgaat	cttggtgcagc	tctattctgg	ccatcatcag	gcggttgatt	tcaggatttg	1020
cagccatctg	tccacagaca	ttgtccgggc	ctgttcaagt	ccccttttga	tggcagccgt	1080
cttaccaatt	cccaattcgg	atagaccaag	gcactcacat	acttgaactg	tcacctatca	1140
ccgctatctg	ttcgatgatg	ggatccttgg	tcagcacccc	tcgatcatct	gcggagctat	1200
gtactttccg	ttggcagctc	tgtacggtct	tttatcctct	ccagaaaata	aagcgttcca	1260
tccggatcca	tgcgtcggca	ttcgccgtac	ggaaatagcc	gtcaggcggtg	aaggcttc	1318

(2) INFORMATION FOR SEQ ID NO:984

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 763 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...763

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:984

```

caaagcagac agaatcatga tggggacagc aatgtccgaa tattctctca tccaatgtcc      60
tccatgtcac aggcagggat gtaagccaag agtttataga caaaagaatg agactgatca      120
gtaccaatcc ccaaaaagaa tgccggagaa gaaataataa cattgaaagg atttggcact      180
acccaatttg cctcgaaatc gagtctatac cacatacgat cgtaaaaatc cgattggagc      240
attctatttt ctctttttct tccgattggc aaaactcctc ctccgataga tagactttcc      300
caacccccat cgttctgctt gccgattgag cgtatcgttc atgtcggatg caaagctttc      360
atcttctgat acaaatccgc cacatgccgg taaaaccgaa tagcctcgga aatagcttca      420
caagcgaataa actcaggaca tcaatactgc tccgcatata agagcataaa cgattgtaga      480
ctccagacct agggaatatc tacaggcagc gagagatgta aagaggagaa gatgattcta      540
agaccacgat gaaggcaatg ccgggcaaaa taatggcaag gaagtcataa gagaaaattt      600
ttccataaag tatcatccgt atttaatcaa agaataaata gaagtaagga ttccccctt      660
cttttagtgt cgtagtctta ttcaggagcg caaatttagt catattcgtc cgcttttcaa      720
tggaataaac cgccactttt tccgttttcc aagcattacc gag                                763

```

(2) INFORMATION FOR SEQ ID NO:985

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 890 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...890

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:985

```

ccgacccgct tccagcttgg gtttgctcag atagtcggcc aaaggatcgc agccaccatg      60
ctgctctctt ctatgtacgc accggattct gtatcggatg caaggccgac acatcgcctt      120
ctcccaaat ccgagcactg ttcttcatac ctgttggggg gtgatgccgt gcgcttcggt      180
gtaggccagt tgctttcgcg tcggcgtgca gtctcgtcca tggtagactg catactgtcg      240
gtgatttgtc cgcgtagaag atgacacgcc catgaatgtg ccgggcggca cgtctgcagt      300
ctgctgtgagc gaacgatgcg agcgcaggaa tccttcctta tcccatccag aatagccaca      360
agcgaactt ccggcaagtc caatccttcg cgagcagatt cccccgatg agtgcacgt      420
agacccctt gcgcaggctt tcatgatacg cacacgctcc agcgtgtcca catcgctgtg      480
tatgtagccg tgctgatacc gtggcgtagc aggtattcgc taagctcctc tgccatacgt      540
tggtcagggt cgttaccagt acgcgctctt tcttttcgat gcagcgtgta tctcctccat      600
cagatcgtcc acttggtttg ccgtcggctt gacgtcgtga tgggatccag cagtccggtc      660
ggacggatca gctgctcgac gatcaccctt cgcttctgtt cagctcatag tcggcaggcg      720
tggcactgat ataaaggctc ggggggtgag agcttcgaac tcgtcgaagc gaagcggccg      780
attgcgagag cggcaggcag gcggaatccg tattcgacca gattctcttg cgcaacgatc      840
gcctccgtac atggcacgta tcttgcggtg tcgtacatgg cttcgctatg                        890

```

(2) INFORMATION FOR SEQ ID NO:986

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3542 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...3542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:986

aggaaagttc	ctcccatgtc	tccagcagtt	tttgcttgta	agcctccggt	tctcttttaa	60
tcggctgaac	gagagcttgt	ccgccttggt	gaatacgagc	tgaacggaat	cccgttctca	120
cccagccatt	ggagaaactc	caagtcgtct	tctgcggttc	atgcctgcaa	tcgatcagga	180
caaagagact	ggaaagtgtc	cgcgacagag	gatgtacgtc	tcgatgatcc	tgcgcaagga	240
ttcccgttgg	acgcacccaa	acgggcatat	ccgtagccgg	gcaaatcgac	cagaaccacg	300
aatcgctcat	gataaaatgg	ttgatcagct	gcgttttgcc	cggttttggg	aggctcatggc	360
cagtcctttt	tggccggtaa	gcataattgat	caagaggatt	tgccacacatt	cgaacggccg	420
atgaaagcat	attcggggag	ctcgtatcag	gacatttgcg	cacatcggta	ttactgatta	480
caaatgccgc	ttttttatatt	ccattcgggt	ctgtcggttat	ttatatacgg	atagccgtaa	540
ataattatat	ctttgtgaca	tacaaagata	gctttctttt	accggttagc	ctcaattaga	600
atatgaacaa	atcgcttata	attcttatct	ataccctggt	tgggttttgc	tcacgtctct	660
gcaaagtctg	gcattggaga	gcgccacccc	ggcaccccct	ccttttggaa	tacgccctcc	720
gcttattatt	ccgtaggatc	gttgatgcct	atatcatagc	cctgtactat	atcaattatt	780
ttctatagcc	ccattcatga	tcaagaggca	cctctttcgt	ccctatatcg	tgcgtcgctg	840
gccttggggc	gaataggcat	gttgcttccc	gtcgtcttcc	acacgcttgg	caatggactg	900
taccggggac	gtccgaagga	cagatgcctc	ttacggggaa	ggcttcacgc	cctccatagc	960
ggccatagcc	gtagggctgt	cgctcccgga	gtccgcgagt	gggtgcgtct	ggctcgtcgg	1020
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aacgcacctt	cctctactcc	tgtcagtcga	caaacaacga	atagtcatgc	gaaagaaacg	1200
ctccaatccc	tactacaaag	tcagcggcgg	aagttcagca	aacgaaattc	cggacgcaga	1260
tattcgagaa	agagagaaga	aacggacggc	gacgagggct	gatgatcagc	ctgtcctctc	1320
ttgcgcctc	ggatatctga	tagccaagcg	atacagggct	tggttcgttt	ctcgcccgaa	1380
gtcgcttaca	ccgtaccgca	tacgatagac	aggctcacc	tacaccgggt	gaggatttcc	1440
ttacccaaag	gacggtcagc	tggcggtgcg	cacctgccc	caagactcct	ggctggacta	1500
tcgctctccg	gacggagcga	tgcagatacc	ctgctgatct	cgctgccggc	cgagggaaaa	1560
gaagtcgtac	ccgtgccgga	cgcaactact	attaccacgc	taagataaac	ggactcagcc	1620
cggccgcacc	tacactcaca	gggtcaagac	gggagagcag	acatcgccctg	gtaccgattc	1680
tccattcccc	acagttccgg	tgctaccgac	ttcattatat	cggggacggt	caggatccgg	1740
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cggtcatagg	cgactggacg	gcacgcacac	ccgtcatcgc	cgctaccggc	accacgagta	1920
tatcaaagga	ctgaaaagac	agctcgatcc	ccgttgggta	ctcagtacaa	ctatccggcc	1980
aatggtccca	aaggcttcga	gcggcggtct	actacataga	cttcccccat	atgcggctca	2040
tcgtcatgga	caccaacgca	tccaatggcc	ggcatccgta	ttcaaccacc	gcacgtgggt	2100
gaaaaaccac	tcgaaaccac	cgtacagccg	tggaaaggtg	tcagtgtcca	ccacgggtgt	2160
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aagacggagt	ccggcacgaa	gacacacccg	tatatatcat	cagcagcgca	tcgcccacgc	2340
actaccgcaa	cgattctccg	agcagcagca	caggatcggc	tccggcctct	acctctatca	2400
gccatccacg	tcacgcaggg	agagatccgc	taccgctcca	ccaccttcga	aatcgcccgt	2460
acgacgacct	gcacctgaag	aagcagggag	gccgaaccaa	gtcaaggaca	atgccgagga	2520
ctggaaagag	atcttcgctt	tcgacaactt	gccgacagca	aaaaaggccg	taaaaagcgt	2580
gccgactata	ggcaggcgcc	caagaacgag	cagccggaca	tcggtaagcg	gacgatcggg	2640
ggcgcgaaaa	tcagatcgaa	aacgaacgaa	cagccacact	gccaaacaact	tttcatacct	2700
tcgttgccgt	aacgacagaa	tagaaacata	gacgatcctc	ggtcaaaggt	cgcgcggtcg	2760
tcgattcttc	gattaactaa	caaacaatga	aaaagaagac	cttatgcgta	gtggctttgc	2820
cacacgtgcc	atccatggag	gcctatcgag	aacgccttcg	gctgcttagc	cactcccat	2880
taccaaacad	cactttcggt	tttgacactg	ccgaacaggg	aggccgcccgc	tttgccggag	2940
ggaagacgga	tacatctata	cccgtctggg	caaccccaac	tgacccaact	ggaagagaaa	3000

ctggccatgc	tcgaaggcgg	agaagccgcc	gcacgcgctc	atccggtatc	ggagccatca	3060
gctctgccat	ctgggtatgc	gtgaaggcgg	cgaccatata	gtagccggca	agacgctcta	3120
cggctgcacc	ttcgctctct	cacccacgga	ctgagccgct	acggtgtgga	agtcaccctc	3180
gtggaacccg	ccatccggaa	gaggtggagg	ccgccattcg	cccgaatacg	aagccgtcta	3240
tctggagact	ccggccaacc	ccaatatgta	cctgaccgac	atcaggcagt	ctgcgacatc	3300
gctcataagc	acgaaggcgt	acgcgtcatg	gtgacaatac	ctactgcacg	ccctatatct	3360
gccgtccgct	ggagctgggt	gcgacatcgt	ggtacacagc	gcgaccaagt	acctgaacgg	3420
acatggcgac	tcacgcgcgg	attcgctcgt	ggtaaagagg	actacatcaa	ggaggtgaac	3480
tcgtcggcgt	caaggacctc	acgggggcca	atatgagtc	gttcgatgtt	atctgatcag	3540
cc						3542

(2) INFORMATION FOR SEQ ID NO:987

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5277 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...5277

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:987

gaggcacgaa	ccgagcctac	cgctcctgtc	ggactgatta	ccctcagcat	cggaaactca	60
agtgcgagag	tatctcgatg	agttggcttt	cttgtgcgaa	cagccggagc	gcagccgata	120
gcccgccttca	cccagaaact	ggatcagcca	attccgtaac	ctttgtaggc	aaaggcaaat	180
tggatgagat	acgcgctatg	tgcaggagaa	cgagatcggc	atggtggtgt	tcgacgacga	240
actgtgccca	agcagctgcg	caacatcgaa	aaagaacttc	agaccaagat	cctcatcgta	300
cgggtcttat	cctcgatata	ttcgcccgcg	gggcacagac	ggccatgcca	aaacgcaggt	360
agaactggcg	cagtaccagt	atatgctgcc	tcactgacgg	ggctatggac	ccacctcgaa	420
aggcagcgag	gcggtgtcgg	ctgagaggtc	cgggagaaaa	gcagttggag	acagaccgcc	480
gtatcgtctt	gacaaaatag	ctcggctcaa	agaagaacta	agggacatag	acaagcagaa	540
tccgtgcagc	gcaagaaccg	tggcaagatg	gtacgcgttg	ctttggctgc	tatacgaatg	600
tcgggaagag	tacgttgatg	aatgtcctct	ccaaaaggag	gtcttcgccg	aaaacaagct	660
gtttgccacg	ttggatacga	cggtgccaa	gtgatcatag	acaatttgcc	tttcttgctg	720
agcgatacgg	tcgggttatc	cgcaagctgc	ccacacagtt	ggtcgaatct	ttcaaaagta	780
cactgatgag	gtgcgagagg	cggtttgttt	ggtgcacgtg	gtggatatgt	cgctccggca	840
ttcgaagagc	aaatagaggt	ggtgaaccag	actctggcgg	agtaacggca	ggagaagaaa	900
agccgatgct	tcttctcttc	aacaagatcg	agcgttctct	ttcacacca	aagacgaaga	960
cgaccttact	ccccgaacaa	agagaacata	agtgcgagg	agctgcaaca	gacctggatg	1020
gcaaaactcg	gaatgactgc	ctgttcgtct	cggcgaagaa	aggcaccggg	atggatgcct	1080
gaaagctctt	ttgtacgaga	gagctaaggc	aatccatata	acgcgctccc	ctacaatgac	1140
ttcctgttcc	aggactatcc	ggaggagatg	gaataactgt	tctcttgga	agtatgtgaa	1200
aattccttta	gtggttctcc	atcggttgcg	cgaaattctc	tatctttgat	agattgttga	1260
tcttgagacc	ataatttttg	tggctctgtg	catcgacgac	ttcgatcatc	aataacaata	1320
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tctctcttaa	cgaacgcgtg	ttgatggagg	ctgccgaccg	gctttgcccg	tttacgacag	1440
gatcaagttc	ctgtccatct	tctcttccaa	ctggaggagt	tctataccgt	acgggtggcc	1500
tatcatcagg	ccgtcctacg	aaacggcgcg	acaggagcga	ggccgaagag	gattccgatg	1560
cggatgctat	atcctgcaag	ctattcgga	gactgtaate	agacaggacg	aactgtatat	1620
cggatttttt	acgatcagat	cctgcccacc	ttggaggaa	ncggtagcga	ctgcgtacgg	1680
catgccccca	ctcatccgga	tcataaagcc	tacctcgtcg	tttcttccac	gaggagattt	1740
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cacaatgctg	atcggattac	ccggcacatc	accaatacaa	tatgcgtcag	gtcagagaga	3960
tcctcacggc	tacggccctg	tcagcgagtt	tggttcgat	atgggatcgc	ttacgccgag	4020
cagagtgaag	agttgtattg	tttgggtcat	gagctacagc	ccgattgatg	gttagcggac	4080
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tggcaggaga	gaggtctatt	cgggacaaaag	ctcgcgagaa	gttcgaagat	ttggtgcgag	4260
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gtgaatggga	atttttggag	gaggtgagca	atttgaccaa	cgcttcaccg	ctcaatagga	4560
catttcgcaag	acggggggtt	gtatccgaat	gcctgcaagt	atgcctagtc	ttttcttctg	4620
ctggcttttg	cttttgacag	aaacgatttt	gtactgcagg	ccgacctcaa	ggctatcccc	4680
tgcatatggc	caatagctct	cggataacgg	ccatagctgc	tgggactact	atacgggctt	4740
caagagtata	acggcatgaa	gtggcaagcg	gtttctgctc	cgcgtgctat	tatatatacg	4800
gaatggaagc	cggcaagaca	ctacggcctt	ctgtcgggag	ggaggaacga	gaattacatt	4860
ggaaggaggc	aaatcagagg	aagtatcgat	ttcgcacgac	gcttgtcatg	gggcaaaccc	4920
tatgttcggc	aagtgggtgg	ggtattcgga	tgattccaga	caatatcctt	cgaggcgact	4980
ccatccctct	acccttaaca	aaggggtggga	agaaatgcct	gtaggacaag	tgagaaaaaa	5040
gccttggggag	agattagctc	ctgtctgctg	gtgcaggata	ttgtatcgga	tagagacaga	5100
ccgtggcatg	ccacctgact	ttcggcaatg	gcataatagt	aacaccaatg	ggaaacaaat	5160
cacagccgaa	ctgattcggg	agacaggcct	ggctatgaac	taaccgtttg	cttgccgttg	5220
caaaaaggga	aaaatcgatt	ggctgtgaag	ttatgaatag	attcgggaag	aattgat	5277

(2) INFORMATION FOR SEQ ID NO:988

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 875 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...875

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:988

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caccctctta atttataata tccgcgctgc cagatggaaa aacgaaggct ccgcagtcgg      60
gtattctgct ggagctgtcg ctctacatcg gtcagtgtgt agtcgggtcgg atatatatat      120
aggtattttc ccgggcattg ccggcagaga cagtagcagg taagctccca gcgaaacaag      180
agccatcggg ataagggtag tgccgtgatc caaaggatca cagctcttct gcgtgtgcga      240
ttcctttttt tctgtgggag gcggtatctgc tgtaggtcgt tttcttgctg ttttctgaac      300
catgcccaaa gataaagcat ttatcctgct ccggagtttc gtcaaactcg tacggtcctc      360
cgtaaactct aagagtgcag cgcttcatac ggtgtaaaaa catgcgaggc gtatctttcc      420
tttgaacaac ttattgccct ccttcataac ataagacccc tctaaaatac gtgcaaaaaa      480
aattttcaac acgaagaaga atttagaatc attccaaata agcgtccgaa aggaaacggg      540
tttgaaatcg ggaagatgaa aaattagact tcgtgaagcg aaaatccata ttcaaaagat      600
cgaatcacga ttgatataaa aaacgttttc gatttattat aaactgattt caataaatat      660
ataaatcgaa aacgtttttg atataatcgc agccctcaaa aagccttttc gtaagggtgat      720
aaaacagcga caccctccga ttccttcttg aatcgggcgg gtgtcgtata tgtttgagga      780
cttaagcaga gctgcacctc tctatatcat cataggcgta tcagtccttc atcgaatact      840
gcgatgagag acgcttatat cagtcccaat gaatc                                875

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(2) INFORMATION FOR SEQ ID NO:989

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 610 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:989

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acgctttttc gttcgttcac atcgggtctct tcctgctcat aaccgaagcc tgtttgatgt      60
tcagttctac gccggacaaa ccgtatgaag agagcttctc ttcgcactgt ctatctgagc      120
cggagaaaac gtagcaccga tcaatacact tctatatgct tccggttggt ctcttccagt      180
agctgggtcg gtatgactgc gtattgggga tactgccgat cacctctcgc acgtacttgt      240
gtgcgtttcc tgaagtagat tggtgctgaa gagctgtatg ctcagataga tactggagca      300
atcgtagata tggcaatgac cgtaatgatc cggcgcaact tctctctcgc tgtttattga      360
ggaagacttt gcgtgggaac ttcagcaaac gtctgcaagg aaggtagcca gtgcgataaa      420
tacagaattg atgatgaaga gtagaaagcc ccgaagaaat atgcaaaact cccagtacca      480
aggccgaaac ggcagtacag agaggaggca taagggccgt cgcgatagcc acaccgggtt      540
tacattgccc ttgcttttgg tactgccggc gacaatcccc gcagcacccc gaagaatgcg      600
atcagcacgt                                     610

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(2) INFORMATION FOR SEQ ID NO:990

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 922 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:990

ccagcgtagt	acgcagatgg	atgccgggta	cttcggttcg	gaccccttca	tcagttcgta	60
ggtctccgcc	ttggtaatgc	gcctgcgcat	ccgtccgaca	tcggatcgct	aatgtgctgc	120
aaagccatgt	cgaggtatgt	gcagacgtag	gccgctcacg	catcacaggc	aagagatcca	180
gaggaaactg	tgccggtaag	cataatgcag	tcgaagccac	tcgacccctt	tgatgtcgga	240
caaactgctg	tcagttctgc	cagacgggta	gcaccgtaca	ggtcgaggcc	gtagaggtaa	300
gaccttgagc	aatcagttgg	aactcccag	tcccatgctt	tacagcatcc	gtacctcttc	360
gactaagtcc	tccatcgggc	gcgaccgatg	ccgccggtga	taatcggtat	ggcgcagtac	420
gaacagctgc	gacgcagccc	ccgatatttt	tcagataggc	ataatgccgc	ggagtgggtca	480
gtttgcgcct	ttctctgcct	cggcataata	agacttcccc	aaatgagaaa	tgagttgctc	540
cagtcgaatt	tgccgtagta	agcatccact	tcgggtatct	ccttcttcgg	tcttcccga	600
accgctcgct	caagcagccc	attacgtaca	ggctgccata	cgtccggcct	tcttcgcctc	660
caccatctcc	agaatggtat	tgacagctcc	tcctgtgcat	cgcctatgaa	tccgcaggta	720
ttcaccacca	cgatccgccc	cataccgaag	ccggatcggt	atgcacggta	tagccgttgg	780
acagaactgg	cgcatcagca	cctcgctgtc	caccagattc	ttggagcacc	caacgtaatg	840
acgtctactc	tgtttcttct	cattcgccaa	agagagagtc	cagaattcct	tcttacggaa	900
gatctgcagg	tcgtctatgc	cc				922

(2) INFORMATION FOR SEQ ID NO:991

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 941 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...941

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:991

gggactcggc	tcccgaccgg	cgcggtttac	ccaaccgatc	cggcgagcag	attgcccact	60
accaaggcat	agggcggtac	atccctaata	accacggtcc	tgacacctacc	atggcataag	120
cccctatcgt	aataccacaa	agaatagggc	attggctccg	atggagacgc	cttcgtgcaa	180
atgagtgggg	cggtatcgga	ttttctttca	ataaaggcgc	gaggattgat	cacgttggta	240
aataccaact	cggtccgagg	aatacgtaat	cttcgcata	gacaccacta	tacaagaaac	300
gttggttctg	accttacagc	ctcgccccag	tcgtacctcc	ggcttataac	gacattctgc	360
ccgatgttgc	aattctctcc	gacctcggct	cccacatcaa	gtgagagaag	tgccatacgc	420

gtgtaccctg	accaagcaca	caccgtcttc	tactatcgct	gtgggatgga	tcataaagac	480
ctgctatcaa	tggcgatcaa	ctgttcggca	cgttctaccg	atgaacggaa	tgaggcatta	540
tctccatctc	gttcgtcaca	cagcgacagc	cgtggagtac	ggtggcatgt	tacgtcctcc	600
catcagttcg	ccgatagccg	acaaggactg	agccgtgggt	ttttggagag	gaacatgacc	660
acctgacgag	cctgtacgat	atcctgttcc	gactcttgct	tttcatctgc	tctatctgca	720
cctgaaatac	tctgcgactg	cctgctggat	gcactcgatg	gtgacttcct	ttttctccag	780
tctgcagctt	ggcggacaat	ccgtttggca	aagggtcagg	cgatttcctt	accacaacca	840
ccgaattttg	gatcaaggat	acgagggtgc	cttccagttc	acaacattgt	cgcagacatt	900
tttcggcgat	aaagttcagc	accgattcgt	cagccggaca	c		941

(2) INFORMATION FOR SEQ ID NO:992

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1041 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1041

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:992

ggctcgggtac	cccggcccga	tacaaattgg	aggcacgcga	tctgcctcgt	tccccgaagt	60
aaagaggggat	ctggcattgc	ttttggacaa	ggctgtttct	ttgccgaaat	agaatcactg	120
gctcgtggct	gtgagaagaa	actgctggca	gggtggaact	attcgatgtg	tacgagggaa	180
agaacctgcc	tgccggaaga	agagttatgc	agtgcgttcc	ttcctgcgca	atgatgagaa	240
gacgctaacg	acaaacagat	agaggctatc	atggctaaga	tacggacgac	tctgagcaaa	300
agctcgggtgc	gcaactccgc	tgacaatcaa	acgaaaatcg	acaaataaga	atcgacatat	360
cattatggga	cgagcatttg	aatatcgtaa	agaaggaaaa	tgaaacgctg	gggcaatatg	420
gcccgcgtct	tcaccaagtt	agaaaggaaa	tcaccatcgc	tgccaaagaa	ggcggccccg	480
acgtggagac	aatccgcgtc	tgcgtatcct	cgtgcagaca	gccaagaagg	agaacatgcg	540
aaggagaacg	tggaacgcgc	catcaaaaaa	gctacctcca	aagactatcg	gactacaaag	600
agatgaacta	tgagggtat	ggtccttacg	gcacgcacac	ttcgtggaga	cagctacgga	660
caataccaca	cgtaccgtgg	ccaatgacgc	agctacttca	acaaacatgg	cggatcgctc	720
ggtacttccg	gcagctggaa	ttcctcttcc	agcacaaatg	cgtatttcac	atcgtaaga	780
aagagatatg	gatctcgaaa	gccttgaact	cgaactgata	gactacggtg	tggcgaactg	840
gaagaggacg	aaaacgagat	cattctctac	ggtgactttt	cgagaactcc	aacatccaga	900
aatatctgga	agatgcaggc	tatgagatcg	ctcggccgaa	ttcgtccgca	tacccaacga	960
tacgaaagag	gtaaccgcgc	gcagcgcgaa	cagatcgaga	agctcatcga	gcgaatcgaa	1020
gaagacgaaa	cgtgcaaaac	g				1041

(2) INFORMATION FOR SEQ ID NO:993

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:993

gcggttgaaa	aacggctcga	aggtaaaggc	caacagcaga	cctgcgatga	tgtgagcagg	60
gttatgacga	gggactccaa	caggagcttg	cggatgaccc	cgaacggctt	ccgccgagca	120
ggcggcgaat	ggccgattcc	ttgccccgaa	accggcttgt	gcgacagtca	tattgacata	180
attgagcacg	gcgatacgag	gatgagcagg	acgatacccg	tcagcacttt	cacttttggtc	240
atattttcgc	gcgattctcc	agattggctt	ccacgaccct	gctatcgaag	tagcatccgg	300
cagagagacg	aagtgtactt	ctttgtggaa	accctgatga	taggccacat	aaacgcctcc	360
ttcttgaatg	tttcttcgag	gattcgggct	ttctctcaag	gtcggttccg	gctttgagca	420
gatagtaggc	cataaaactg	cattacccca	gcggaaggca	ttctcgccac	tcaaatcgga	480
cagaaaatgg	aattgaccac	aatatccacc	tttttgaact	ggctgttgga	cgggattcct	540
ccattacgcc	cgtgatcgta	tgaggaaaaa	tgtagagaaa	tacggattac	ccacgggatac	600
ctgatcggcg	aagagcttgc	gagcaaaatc	ccgagagtga	cggctgactt	ccggtcgttg	660
agcacttgcg	aggggatgcc	attcgtagac	ggaaatcga			699

(2) INFORMATION FOR SEQ ID NO:994

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1842 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1842

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:994

gaacgaatcg	cgcagttcgt	cgttgatcgt	ctcgtacatc	caccatttgc	ctgacgctga	60
cgtttcagtc	ggaagaatcc	gttgtccgtc	gtaaaatgcg	gtactcgtcg	atcatatccc	120
aaatatacctt	gatgccgatg	gcataatgcc	tgaatagggtg	aggactcgcg	gcttccatcc	180
cgattcggcc	tgtgggatag	ccgaagagca	ttccgataat	gcgaagccgc	cagattggcc	240
ttgtcatatt	gtctccgtcc	gctttattga	cgatgatacc	atcggccatc	tccaaatccc	300
gcgcttgata	ccctgaagtt	catcccccg	accggccagt	tggtcagcag	gaagaagtcc	360
accatcgaat	gaacagcagt	ttcgctctgt	ccactcctac	cgtctctaca	aagatcgtgt	420
cgaatccggc	cgcttcacac	acacgatgg	ctcacgcgtc	ttgcgtgcc	cgccaccag	480
cgaaccggca	caggactggg	acgaataaag	gcattcttct	ctcgagagag	ctgetccatc	540
gggtcttatac	gccagaata	ctcccttttg	atctctcgct	gctgggggta	tggccagcac	600
ggcaagcttc	cgccccgtgt	tgatgagatg	cataccgaag	catcgatcga	agtactcttg	660
cccgtccgg	gtactccgg	aatgccatac	gcattggagcg	gccggcatga	ggcaggcact	720
gctctatgat	gtcttgccg	tatcctgatg	catgggcagg	agactttcca	cgagcgtgac	780
ggcaggctca	ggatggttat	atcacgggcc	aaaatgccgt	ccacatagtc	cttaccgtca	840
gcttctttcg	tcttgtccta	ttcaggtagg	gattgatgat	ggcatatttg	aaacgcctt	900
gttcaactttc	agtcctttat	agcaatcatc	atttcgggat	gatgaagtag	ttcgtccata	960
gttaatgttc	tgtttatcag	tctgcgggca	atctcgcttg	cagtaccgct	tggcagcagc	1020
tctacgggga	aagctacagt	tcggctttga	ccttgatacg	acgtagcgga	gcctgcggtc	1080
ggtgcaata	atggaaatat	cggcagctat	actctgccac	ccctcagctt	catcacctgc	1140
ggatccacag	cgatccgcaa	tagtgtgctt	ccgccggctt	tatctccgtc	cggtcgggta	1200
cggcagtaaa	agccggattg	cgtgtgtgac	gctatgcaat	cggagagggc	cggcaccgac	1260
gttgcgaatc	tctacgcagc	ctttgtcgtc	tctccatcca	actgtcccat	gtccaaatag	1320

gtgtgagttc	cataacgcct	gtttgggctg	cagtgagggc	agggaaattg	tcaccagcgg	1380
caaggagacc	atgacggaat	caacggcttt	ttttcctgtt	tgggagaggt	tacctccaaa	1440
acgagaggct	cgctccttcat	ccccggaggc	tattgcgagg	tacggcaagc	gaaagattca	1500
gctctctggg	ctcacgagct	gcagccggaa	tgcccgatcg	tccagcgata	caaatagaag	1560
tagcgataga	cagcaacttg	caggctcggac	tcatccgtat	tgttcaccac	caaccgtcca	1620
ccccctcatc	ttcaggcatg	gaaataggga	aaagcaggcg	agcattctca	cctgtagcgg	1680
ccctatcgcc	aagacatagg	catgcggtat	ggcacactga	gggtcgtaac	cgtgccgctt	1740
atactgagtt	ccagcgggtga	agatgcgcgt	tggagaaaac	ccgaatccgc	ttgacgaaag	1800
ctcctgatcg	accacaggat	cgaagaggac	gcggatctcc	gc		1842

(2) INFORMATION FOR SEQ ID NO:995

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3194 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3194

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:995

gctcggaaacc	caagacggaa	gtgcaggatg	tccgtccggc	tttgggcaga	cagcggacta	60
catgcgctac	cgcgtatcgc	gacaagtggg	catagaatga	ggatgccgaa	tgagggtcatc	120
ggcatagcac	tttcggcacc	gctgttcggt	gggtgatcga	aaatatgatc	aaaaatgccg	180
tcgatgccat	gagcggaaaag	gaaagatcac	gatcgaaactt	aaggagaaaag	gctcgtatgc	240
agtaaagata	ttaccgacac	gggcaaaggg	atccccaagg	ggaaaatgcg	cgattattcc	300
gtccgggcta	ttccacgaag	accagaggtt	ggggtttggg	ctttctcttg	caaagcgaat	360
catagagaaa	tatcacaaaag	ggaaaataag	cgaaagcaat	cggagccggg	tattggcact	420
actttccgta	ttctgctgcc	gaacagaccg	atctgccata	agtatacgaa	cgaaatatgg	480
agccgaaccg	tcctttttccg	ccccggagta	cggggccttg	attttagagt	atattatcga	540
cggattccgg	ccagagagatc	ggtgaaattc	ccaccgtcga	ggaactccgc	gtaacgacaa	600
gctcagagaa	tccaatcaag	aaatgatcgc	tctgaacaat	agcagttgct	cttaatatcc	660
gcatctcgca	gtatgcgtca	gttcgcgagg	aagataatcc	gcctcccttt	gcactcgcaa	720
gtctgcatct	gttgtcataa	atgatttaca	gcattattac	tacatttacg	gagcataaat	780
gtagcggccg	gtgtctttcc	caatagaaat	gcacggtgca	gcgttataaa	taatacaggt	840
tgaagtccgg	gcgtgccccat	cgtttcgact	tcttgctatt	caaattgaaa	aagtaaaaaa	900
atgacatata	atgaattaca	actggaattt	gagccgttta	ccgcagagga	acgttccctc	960
gggacaatat	tctgtcggga	ctaaggctcg	cgcccgtagt	ggggtgccta	ttggcacgca	1020
ggggaatagt	tccgtagagg	aagctaagcg	tttctttcgc	ccaagattgg	aggatctcac	1080
gatccctttc	tgatgaagga	tatggacaag	gctgtagctc	gcctgaaagg	gcagtagggc	1140
gaaaggaaaa	aatcatgatt	tacggtgact	atgatgagac	ggtaccacgg	cagtggcact	1200
cgtctataag	tatttgcgcg	ccacggctgc	tccgaaaacc	aattggatta	ctacattccg	1260
gatcggtagc	atgaggttat	ggtatctctt	atcgaggaat	tgattttggt	cactctctcg	1320
gaagaaactg	ataactgtac	tcgactgtgg	tatcaaaagg	gtcgaaaagg	tgcatacgcc	1380
aagtcgcttg	acattgattt	tattatctgc	gaccatcaca	accggatgaa	acgctacctg	1440
atgccgttgc	ggtgctggat	gccaaaagag	tgacaatacg	tatccttacg	aacatctctc	1500
cggctgtgga	gtcgggttca	gtttatgcaa	gcctatgctc	ggagcaacaa	tttgcccga	1560
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ctcggcttgc	aggctataat	agatgtatgc	ggtctaagaa	gcgaaggata	gatatgaacg	1740
acatcgtctt	caagatcggg	cctcgatcaa	tgcttcagggt	cgtatgatga	atgggggtaa	1800
ggctgtggaa	ctatactctc	tcaggatgct	gtggaagctc	aaagccgaac	ggccaatata	1860
gagaatacaa	cgaccaacgc	cgtgagctcg	acaaggatgt	gacggaacag	gcatcgatat	1920
tttgggcgag	ctatccgatg	tggacaagaa	gatcctcggt	tctaccggcc	ggaatggcac	1980
aagggcgtta	tcggcatagt	ggccagcaga	tgaccgaacg	ctattcgcgc	ccgacgatcg	2040

tgatgactaa	gagcgggtgtt	tcatttcagg	ctcggctcga	tccgtaggag	ggttcgatgt	2100
gtacaaacca	tcgaacattg	caaggacttg	ctggtcaatt	tcggagggca	tcctttgcct	2160
ccggtctgac	gatcaaagaa	gagaatctgg	aaaccttccg	aaagagatta	cggactatgc	2220
cgaagaggct	gtatcgccgg	aactattggt	gccaaaatag	atgtagatgc	cgaatatatcc	2280
atcgaagagg	tcaattacaa	actctcgaca	acctcaagcg	gatggggcca	ttcggcccgg	2340
aaaactccaa	gcggctctta	tatcccgaca	actgtatgat	gccggtggta	gcagggctgt	2400
agaaaagcct	ccgaacacct	gaagatagat	gtgagagtgg	gatcggggca	cgccatccgg	2460
tgagtgggat	tgcgtttaat	caggccggtc	attgcatggt	atcaaaaacg	gctcatttcg	2520
tctttgctac	acgatagaag	agaacgaatc	aacggcaaca	aatcattgca	actattggtg	2580
cgcgatatta	agcccagaaa	gaatctgcta	ttaacggaaa	aacaagatga	aaaaaacgct	2640
cacgataatc	tgggaggcaa	ggtcttccac	atcgacgagg	atgcctataa	cctgcggagg	2700
agtatctgca	caatttagcc	tcacatttcg	atcgggagaa	ccatcggatt	gtaagacgat	2760
caggaataatc	gaagcctact	tgtccgacat	gatgtggtgc	gtttgcatag	cgaacacgcc	2820
gtaataagta	tcggcctgat	tctgaagtca	tagaaaagat	caatacggga	gagcactttt	2880
cttccaatga	aacagtacga	ctgccggata	ttctgcaggg	gccggttaca	gtcagaagga	2940
agagaaactt	caggctatcg	atacatgtcc	ggggaggctc	cgaagcggag	ttttatcgcg	3000
acatggatca	tgccgttttg	tgtggcgtgt	gtagcggttt	gctgcatata	cgagatggaa	3060
tgtgaatgct	atccgtgtga	tagtcgtttg	atgacgattt	tggcttctcc	gctcttttgg	3120
atgatcatta	tcggtttttg	gccgtttgga	tgatagctcc	accggctata	actgcttctc	3180
agaaatggag	atgt					3194

(2) INFORMATION FOR SEQ ID NO:996

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1613 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1613

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:996

ggctcaagac	tttttctatg	acaagaaaat	gaagccgaag	ggcgacatgc	gcatattttc	60
atgtggtttt	atcaatttat	aaattctaac	ggaaaccaag	tctcgttcga	aacccccaaa	120
aaatagtact	tatttaggtc	gtgacatcga	aaaacaatag	atttcatagt	tcgggataat	180
aatcataccc	ctgtagttcg	ccgaagggaa	gcagaaactc	tataaaaaag	aatgatagga	240
taaaatgata	agacccttag	gtctgccttg	tgcggagctc	atcccgccaa	gacagaccat	300
aagggtccgc	tcacaatata	ctccaattcc	tagcaaaaaga	atcgatcggt	tccgctgcgt	360
cggaaacaaa	attttcctcg	ggggattgaa	aggaaagaaa	cggatccttg	tggcagtaaa	420
gtcggattga	ccacaagtgc	atctctcccg	gcttttcttc	gaagccgcag	acaaagactt	480
tgcaggctct	tggctcacc	catacttccg	actccttccc	atccgcacag	aacggacagg	540
gatataaatg	ccgaaagctt	aacaaggttc	acagcagcgg	gactgctcgg	attttcacc	600
gattcccttt	taatcatcac	caccgatccc	aataggaaaa	ggcagctctg	aacaaagtcc	660
gcacaaaagt	aaaaaaataa	cacattcaga	tatagcagga	tgcataattc	acagggcaat	720
cgcattttcag	ccactacgta	catctaaagc	tcatgattgc	tacatccaat	tatcaaacaa	780
gtacaattaa	tgggaccttt	gcacaataag	caggcacttt	tgttcattca	tttatgtgtg	840
tcagacgacc	atttagtaca	gtcagttac	cgccggcaac	attcgtttcc	cccttaaagg	900
ccaatatgaa	gtcctcaatc	cctcgtattc	aagaagaaac	tcgctcgaat	gaagccgcaa	960
aaccgattta	atgcgtcggc	ccggggcagc	ctgtcaggac	gatcgcgttt	gaaaattttt	1020
tagttttcac	aacgaagcgg	aatttggaa	gattctaaat	aagcacctga	aagggaacga	1080
ttttgatgtc	gaaaatatga	agaaacgaac	tttttcagg	caaaatagg	ttatggggaga	1140
caagataacg	atctatatac	aaactgttta	cgataatata	tagatcggtt	tcgatttgta	1200
tataaatcat	tttcaattta	tatatgatcg	aaactcattt	gtatataaat	cgaagaccga	1260
aaaaggccct	ttcgaagctg	aaataaaaaga	ggcaccgcga	cgattcgtgg	ccgaaccgtg	1320
cgggtgcctta	tgcctttgga	ggagtataag	aggagtattt	cctacttatt	cgcataggga	1380

tatatgctgt	ttgtccaaat	atcgagatgg	cgtggttaggt	ttgggcgca	aaggatcggc	1440
cgaaaagatc	gggggtataa	atgtgttcgg	gcacatgttc	tggtatagtc	tattatccat	1500
gtagttctat	tcaagcaatg	gctctcttgg	cagcgacatc	caacttccga	cagagagctt	1560
catcgggcac	aaatgtaaga	aaatattcag	tctcgggaga	tttgaaaaaa	tcg	*1613

(2) INFORMATION FOR SEQ ID NO:997

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3202 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3202

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:997

ggctctgaca	ggagtacgga	agagttgctc	ttgagtacat	taggaatcaa	tgggtcagga	60
gtactttcaa	ttcattgata	aaatcggctg	ctgaatagcg	cctcgctcga	tgcgacgaag	120
cttgatttcc	cattggccgg	tcagctcgca	ctcttgagca	ggtcatagtc	gatcgctcgt	180
atcaaaagaca	tacccgagga	gtagctttga	gattcttctt	ctctttataa	atgtagttgc	240
gcttgagaga	gtctcaatga	tggctgctcg	cgtagacggc	cggccgatgc	catttctttg	300
agggcatcgc	ggagctcttc	gtccttgacc	gacttgccgg	ccgctccatg	gcacgcagga	360
gtgtagcttc	ggtatagaat	ttgggaggct	gttcgttttc	tcctgcacct	cgggggtgtg	420
tactccactt	tcgcccctcg	aaatattggc	agttttttct	cctcgctcct	gttctctcca	480
tcacgtccg	ctgcggatcg	gtgaagacag	tgcgccagcc	gggctccagt	atctgtttcc	540
cgtgggtttg	aactctacct	tagctgcttg	tcccaagacc	gtggtctgct	gaatatgcag	600
tccgcataga	aaacggctat	aaatcggcgg	gccaccaatc	gaatacacgt	cgctcatcct	660
ccgacatacc	atgggatggc	tgaccgtggg	aatgatggca	tgggtggtcag	tgatcttgct	720
attgtcgaat	accttttgct	tttttttagt	ttgctacttc	gaagtggagc	tgtgagcagg	780
gtatgtcgga	gagtccttgg	aggatattcg	gcactttttc	gaatacatcg	tcgtcagata	840
ggtggatatcc	acgcgcggat	aggtggtgat	cttcttctca	taagcgattg	gatggtgcgt	900
agcgtagcat	cgcccgctac	ggcaaacctc	tattgcattc	tacctgtagg	ccggtgaggt	960
cgaaaagtcg	aggcggcagc	cccgaacctt	cttcgtagcc	acggaggtaa	cagcaaatgg	1020
gctgccagca	cgacctccac	ttcccagaca	gcacccctga	tcgaggaaaa	gcgtccctgg	1080
tggcattgaa	caccgatcgc	cggtagatgg	tcttcacctc	ccagtagctt	caggggtgaa	1140
gtgctcgatc	tcgtgctgtc	tcctgacaat	aagggcagag	tcggagtctg	tacacgtccg	1200
atggaaagta	cctgtcgggt	gccccgaagc	ggagcgtata	aagacgcgta	gcgttcatac	1260
ccaatagcca	gtcgtatagg	cacgagccag	tccggcctca	tatagggaat	gaaattcttc	1320
gcttcgcgca	gccttcgaaa	gccttcacgg	atagactcct	cagtaagaga	agtatccaaa	1380
gtcgccgcac	gggacatgtg	cagcccgttt	tctgcaatac	caacgctgga	tcagctctcc	1440
ctcctgtccg	gcacacccgc	agttcacgac	atatccgctt	catggacaag	cctttcgatg	1500
gtgccgaatt	gctcccgaaa	ctatcgctat	cgatgagttt	gatgccaaat	cgcagtggta	1560
tcacgggtga	gaactgatac	tccatcgctt	ccattcgggt	gcatagtcgt	gaggttcttg	1620
agggcacaga	gatgtccgaa	agtccatgtc	acctgataac	cgttgccctcc	atatagcctt	1680
tataggcttt	ggtggcaccg	agtacagcag	cgatccacgc	cccacactgg	gcttttcggc	1740
aatacagact	atcatggggt	tatcttgatt	cttaaaaaaca	aatgtacact	tttggccatt	1800
accactgtg	cctgattgaa	actattaatc	ggccatttgc	ttttcacaga	tttgtcatta	1860
gatttttcac	ggacctttga	tttatttagc	tcttccccat	agtgtctaaa	agcaattcta	1920
tgcttcagag	ccagagccaa	cttcagagtt	ttcttgccca	gtgtttttgg	atgtaaatag	1980
gttagctaaa	aacttcattc	ggattgcttg	aacttgggct	tcttcacaga	gttgatttaa	2040
gatttagctg	cataaactat	atcgaactca	cgttataaga	ataacgcgca	gcaaggggga	2100
ggaaaggagg	aaggaaaagg	agaaagagga	atagagagaa	aagcaaaatg	atttttgaga	2160
gagagaaaat	aaaaaaggag	agagccctcg	attcgagact	ctctcttcac	cttttttccc	2220
ggggaggagg	gtggagatcc	tatccccccc	tctcctcacg	cttcttaaaa	aacggcggcg	2280
tcctactctc	ccactgtgac	gcataccatc	ggcaccgttg	ggcttaactt	ctctgttcgg	2340

aatgggaaga	ggggatcccc	aacgttataa	ccacctgaat	acttcgaaaa	ggcaatcgac	2400
aatcgaaagg	ccaacaaata	attcctcaag	ctttgcgcca	acaaaccaac	tataccgcat	2460
ccttcgggat	gcacaaaagt	ttcgggctat	tagtactgcc	ggcttaattg	ttaccaatca	2520
tacacctgca	gcctatcaag	gtcatagttt	taaccaccct	atztatggaa	atcttatctt	2580
gaggccggct	tcgtgctaga	tgctttcagc	acttatccct	accagacgtg	gatacccggc	2640
ggtgcactgg	cggtacaacc	ggtaaaccag	gggtctgtcc	aacacgggtc	tctcgactag	2700
tgtcagaccc	tcgcaaattt	cctgcgcccc	caacagatag	agacgaactg	tctcacgacg	2760
ttctgaaccc	agctcgcgtg	ccactttaat	ggggaacagc	ccaacccttg	ggaccttctc	2820
cagccccagg	atgtgacgag	ccacatcgag	gtgccaaacc	actccgtcga	tatgagctct	2880
tgggagtgat	caacctgttat	ccccggagtt	acctttaatc	ctttgagcga	tggcccttcc	2940
tgcggaacca	ccggatcact	atgctctagt	ttcctacctg	tgcgacttgt	tgtctcccag	3000
tcaagcacc	ttgtgccatt	acactctgcy	accggttaca	atcggcctga	gggtaccttt	3060
agaagcctcc	gttacgcttt	tggaggcacc	accccagtc	aactaccac	catacactgt	3120
ccttgacgc	cgcgagtagt	attccaaaca	tcaaaaagg	ccgtattttc	aacatcgact	3180
tccacaatac	ttggcggtac	cc				3202

(2) INFORMATION FOR SEQ ID NO:998

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1922 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1922

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:998

ggagaaatct	ccaaacaccg	gagagcaaaa	gtcgcaggac	tcgaaagtat	agcctacgaa	60
ttcgtcagaa	acggtcagtt	tggcacggcc	ttttgcacgc	gagcggccaa	tacacgacgg	120
ccatttgccg	ttgccatacg	agagcgaagc	catgcttggt	cagtctctta	cggttagagg	180
gttgatatgt	tcttttattg	ctcttatatt	gttttgtag	ttatctctct	ctacacttcg	240
gggtgaaata	tagagacttt	aatttgattc	gccaaagtct	ttcagttcat	tataagcaaa	300
tgaacgggta	gtcccatgac	attgtagaac	gaaccctcca	ctcctgaatg	gcgatgtagc	360
ctatccattc	ctgtatgccg	tacgaaccgg	cttgatcatag	gggcgatagc	gttcgagata	420
ataatcgatc	tcctcatcac	tagatgcgca	aagggtacca	gactggaaca	cgagaaagcc	480
cttgtctccc	ccggtggcta	atgcacacac	cggtcaccac	ctgatgcgta	cgcccgttta	540
cgtacgtagc	atccgagcgg	cctcttctct	gtcttgcggt	ttgccgagat	agtaccatca	600
atgataacca	ccgtatcggc	cgtaatcaac	aaagtacgtc	ctgcatcata	cctttcgatc	660
gataagcctc	ggctttcatt	cgagcagata	gagcggcacc	ttctcccgat	caagaccggc	720
aggataatct	tccgcatgtc	cggcatggcc	ttttgttcga	atcgaatatc	aagaccggag	780
aggattcttt	tcctcgaggt	gattgcgata	cgagtacgat	cttatatttc	ttcgattgtc	840
cagcataaaa	caacaagatt	tttcgatcaa	agagacttcc	gtcgttacca	tcggaaccca	900
ttcccctgtg	cccagcggcc	ttgtgctttc	acgtttgctc	gatgacatcg	cggacgacgc	960
cctctcctcc	ccggcagtg	atatgtattt	ggccacctgt	ttgatctccg	gcaactgcac	1020
cgccggggca	cgggcaaagc	caccctctgc	atcaccggca	gatcgggtat	atcgctcccta	1080
tataaactat	ctcttcggct	ttcaaccggg	tctcctgcag	gaggtgtcga	gctgctccac	1140
cttggttgac	gaacgcata	agacatgttt	gatgccagat	attctgccc	tttggttatg	1200
gccggactgt	atccgcctgt	gatgaggcca	gcaagaagcc	ttgcttgacg	gcataattgca	1260
tggcataacc	gtctttacat	tcatcgttcg	cataggctgg	ccttcggcat	ccatagccga	1320
aacgtatggc	tgatcactcc	gtccacatcg	aagacgaatc	cccgtatgga	ctcaggtcga	1380
atggaatact	actcatgaga	ttaaaatggg	gtttattggt	cttcgggtccg	tacatcttcc	1440
gaatgctatc	gctaagtatc	cgatagatct	ctgccaatcc	ggatatgggt	tgagcagacc	1500
gagatgtttt	tgcagagtgt	tgtgtcgtct	cttttgcccg	gcccgggtctg	agcttcgggtg	1560
gcggacattc	ctgcaccttg	gccgcagtc	ctgcgataag	aggagccaga	gagcgtgcgg	1620
cagaccatgt	gcggccagca	tttgctcact	caaggcatag	agatgatcgt	gaaattgcag	1680

gcaaatacag	cagccaagtg	cagatagagt	cgctgtccga	tgtacagcgg	agaacgttcc	1740
tgctaataag	acgagcgacg	gattcagtag	tcgtaccacg	gattcgtcgt	taccttctat	1800
atatataggt	atgaagaata	gtccacacga	cgttcgcggc	tgaatgtctg	aagaggatag	1860
aaaccccgat	ctgcgcatga	taagggcgaa	gggtatccat	cggcataagg	gtcctctaga	1920
gt						1922

(2) INFORMATION FOR SEQ ID NO:999

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 799 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...799

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:999

agcacggaca	cacagccatc	tcttttcttca	gtttgttctg	tcgcgattta	tgatggccat	60
caccacaata	aatcccggag	ggaaaagtag	caaaaagaac	atcccagcat	cgatattcgc	120
ctgcgaagga	attcatattc	ctccactccg	ttgctcgtgg	atattgcctg	cgatatgaag	180
tcagctgata	gagtagcagg	ccgaagcgag	gagcataaag	aagcaataga	atataaatat	240
ggtacccagc	tcactctgga	aacagcagac	cgatctcctc	cgtcaggctt	cacacatagg	300
atccgtccaa	tacctgctga	acggcaagaa	ctccctcgga	caaccttcgg	catagtcccc	360
cgatcgaaaa	tgaggggatca	tgcgatcatg	tagatacggc	tcagcagacc	atcgggcaag	420
taaccttcca	gaccatagcc	ctctcaaagc	gtacccgcgc	ctgatccagc	acgagtacga	480
gcaggaggcc	ttgttgttct	tttcattacc	gactcccat	tgacgtgcca	gcttcaagga	540
aaatcctcca	atggagcatc	accgatagac	ggaagagtaa	cgacggcaac	tcaacggcat	600
gactgctgcg	gatggctcgc	agccgtccgt	tcatactcc	tcctgtgcat	tgctgagcaa	660
gcctgcttcg	tccgtcacga	gtcgaggcta	tcggcaagtt	ggacgtagg	tacatcttcc	720
ggcttatata	cccgtgcgcc	gatacacatg	gatgcagcag	aaagaagaaa	aaggccgtta	780
gggaaaaggc	cacactgca					799

(2) INFORMATION FOR SEQ ID NO:1000

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2109 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2109

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1000

tccggaagta	gagtaaccgc	aaaatctgca	atagggttgaa	gaatgactgt	cccaaaatcc	60
atgttacaa	caaaccaatc	actaacaagg	aattgttggt	cgctttcgag	acagaggaaa	120
cagtaccatc	atgactaaag	cactcggtga	aagagtgcgg	agaaagcgat	acagatataa	180
aaatacaaat	atgttttagac	aaaaacaatg	ggaatgacgc	aaatatgatg	cccatggcca	240
catatgtcgc	atggaattca	tcggtttcgaa	atatacctctg	tatatgagga	agaagcgatg	300
atagaaaaga	tgcaatcttt	ggacatcttt	ctcatcccga	tgacatcagg	agaatgggtca	360
caaaggatac	caatataagc	catgtatgaa	aaccaagttc	aaagaatgaa	aggcttttatt	420
gateccattgc	catatcaact	caaattgtgg	gctgtttttac	tatccggaaa	ttgataggca	480
tattcgtaaa	tttataatcc	cgtcccatcc	cgatccttgt	accggagaaa	attacaagac	540
aagtcctgat	atccaaaaga	cgaagggttt	gaaacgatca	tcatattttc	tgcaaggaac	600
attaccgcaa	ggaaaccaa	taaaacgaaa	taagggtacat	gattatctat	tttttctatt	660
tggatgaggc	agattcgata	gcggaatacc	gatattaagc	agggtaaaaat	cgctgtccgc	720
cggaagtctg	tacacttacg	accgtcgtatg	accaaagatg	cagccatcgt	ttgagagaga	780
gctgccaatc	aggcattctg	aattccttcc	atcccgttac	atggaacaga	gccctgctcc	840
ccggactgca	tcgtacatat	ccgtgggtata	ttccactttg	tccccaatct	tttttggtcc	900
tctttcatcg	ccacaggatc	gtacaccgca	atctgcaacc	aacttccaac	agtttctcga	960
tgagtaccag	agaaggagct	cacgcatatc	atcgggtaccg	ggtttgaatg	acaaccccca	1020
tatcgctacc	atcggccttg	cacattgcct	ttgtaatagg	ttgagaactt	atcgaacaaa	1080
tactcttttg	cttctcgttc	acacgttcaa	cggcttccaa	tacttccttc	gatagccgtt	1140
gtcttctgct	gttctgatca	gtgctttttac	atccttgga	aacaagatcc	tccgtatccg	1200
caaccgggtg	acagaaactt	gctgctatac	gtgaatcgga	accgataccg	agacgaacca	1260
tcgaaacatc	tgctccaccc	gttcgcacaa	gttgccacaa	tcattcataa	agctgatccg	1320
agtgccagca	tggcattggc	agcatatttg	gtcatttcag	ccgaagcaat	gtcatgaaaa	1380
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tttattttcta	tcagtatcta	tgacgcgaac	atttgctccc	aactccgcaa	acaagtagca	1920
ctgaccagtc	ccacatagcc	gataccgact	acggcaatat	catattgtaa	tagctgattg	1980
agttcttcgg	cacaaaggta	agataaaaaag	agaagcctta	tcgagagaaa	gtcggctatt	2040
tcccgtctct	gtagcaggta	tagtgcctac	taccggaagg	acatgagata	caataaccct	2100
gcgtatatt						2109

(2) INFORMATION FOR SEQ ID NO:1001

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4835 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4835

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1001

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ccagaaattg	ggctgtatgc	cgaatccgtc	tttggaaact	cccgaccgtc	caccgcgataa	120
gaggtaacca	atccgctctt	tttggtgaaa	cgaaatcgac	tttcgacgaa	acgaccttca	180
attcatctcc	ttccgtctcg	tgtgcaatgt	agggcctgta	gcacggtagg	cagttctctc	240
tgcatgatcg	gaagtcggaa	ttgatcgtga	gcaatctcat	accctatagg	aatcgcggtc	300
ctgcctgtag	agtctgtacg	ctgaagtcaa	cgaagtattc	catccggcag	tcggcctcag	360

cccgtctacg	ggtacaataa	tgtccgatga	agctgaggat	cgatatctaa	gccgatgacc	420
ttgcttttgc	atgcttttgc	atagccgaaa	ccgtatagcg	caggcggtat	ttctttgaggt	480
tggtgaagta	aaccgattcg	tgatacgga	atgtcccttg	gcggcatcca	ctgcttcgag	540
ccgacgtttt	gatgcacata	cttcacctcc	tgcatggcag	ggtgaggctg	cggtcgggat	600
tgaccagtcc	gttgcaaagg	aagttgccgt	cactcgggca	tccactccga	agtctcctcc	660
ataagcccaa	taggactttc	ctttatgtct	gtacggagga	taccctgatc	caccagtc	720
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tgccgtcgaa	ttgcccatgg	cgtgagcgta	ttccgaagg	atcacagggc	ggtgctaccg	840
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agtcctttta	tgagtggagc	catcggggtt	gatcgggctg	actgcaggag	gaagaccggc	4500
atactgcctg	ctgctatttc	tcgtgtagat	gaaaagatag	ccaagagggc	tatttgttat	4560
ctttgtctat	atgaaatcat	ttgcagagtt	aatagaaaaat	cggcgcttat	ccgacaattc	4620
tccgaagagc	agctttttgcc	cgaggacgtg	caggcctgat	gacagcggca	ctgcgcgctc	4680
cgtccggcag	gaacaggcaa	cagaccggtg	tatactgggtg	gaagaccgtg	ataagctgca	4740
agtgtctaac	ctgtgaagca	gcatggctcc	cgtttttctg	cagatgctgc	cttggctgta	4800
gtgtactggg	atcgcccatg	ttttccgagc	gttgg			4835

(2) INFORMATION FOR SEQ ID NO:1002

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1002

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cccttgagga	gctacttgca	cgagctctca	aggggggtta	tgccttatcc	tacggatgag	180
gacataatta	tccccgcgtt	ctgtataaat	taaaggcgat	gctttcaaga	atgttttgag	240
tatggtcttg	gcaagtcccc	ggtatcgaca	tcgtccgcca	tgaaccacc	gccgatactg	300
cctcgggtgc	gttcgatggt	gctccgtatc	ggaccgattg	cttgtttcct	tgcttctctt	360
ccaaagggtg	ggttcgatggt	gctccgtatc	ggaccgattg	cttgtttcct	tgcttctctt	420
cctcgggtgc	gttcgatggt	gctccgtatc	ggaccgattg	cttgtttcct	tgcttctctt	480
ttgcaggtag	gaacgatttt	cccgaagca	tatcctttgt	ccgcgaagac	ggctgtgcct	540
tgaggtagt	tgacccctgc	aatagcggaa	taaactcctt	cgtgtcactg	cgattcgctc	600
tgctggtatc	accttttgaa	caatgccttg	aacattgggtc	agacaatgtt	tttgatccg	660
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tctgtcgtct	gcgactcaat	cgtaatgctt	ccgttggtgt	tatgcggcgt	ctccacaagg	840
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gtactgtggt	cgggagaaac	ctcttccatc	tcagccccaa	gaatcgggaa	aagggtgattg	1020
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tcacgggtat	tcttggtattg	gtatgcatgg	gaggaatatt	atgctgtttt	taataactcaa	1320
atatacaaaa	taacccttat	tatacaatga	attaacaaac	aaaatatacg	ccaatcgccg	1358
tgcaagggtc	ccatataggc	tttgattttg	ttgattgt			

(2) INFORMATION FOR SEQ ID NO:1003

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1003

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aggcctcgtc aaggagggtat aaaataaaaag gcaatggctc agagttagta atagggcatt      60
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tcggctcttg tgctgggtgg agcaatgctt tcacggcaca agcccaaaat aaagcggcag      180
agcccgccga agagttttcc tcgaaggagg agcgatgttt atccgccaaa attatgtggg      240
tgcctagacc aattccgtct ctatcgcttg cacgtagggc aagagcacgc tttgaggtgg      300
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acaggggagc tgatgatccg gatgaacagt atttgcgtgc caataccatt ttctccgaca      480
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gcaatctgcg gtatagagcg gtgactttcc gactgcagct gcggattaca gagcctatat     1560
ctcggccgcg gtgatcgtga tgcggcgaat cttcctttag gatattatcg tctgggcatt     1620
ctctattcaa tgccgaacgt tacgatatgg ctttgagggc cttccagagt atgtatcccc     1680
atcccggtatt

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(2) INFORMATION FOR SEQ ID NO:1004

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 914 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1004

```

cgacaccgaa atgatctttt cggaagagct tctctccgtt gataacagga ggctgcccg      60
aatctccatc cccttttgtc cgggaatcag gcgttggtgg acaaaggagt ggccattacg     120

```

acgacacaga	cgagtaaaaa	cagacactct	tcataccat	cggagtttca	ggttatcgat	180
tcgttcgggt	cgcaacgggt	ttcctgctgc	acgcagaatg	tcagggttcg	tccaccgtta	240
cgctctaaag	cgttacttcc	agctgcttgt	cttcggggcag	ggagaactgc	tccacgcaaa	300
gaccgggtccg	ttcggacgtc	ttccccctga	tccatgccac	ctgtggcagg	ctcgaagcgg	360
ctgcaaaacc	tgctcctgaa	tcgctgtgcg	ttggccacct	tttatccacc	acttgaaggt	420
gatgaagtcc	accgagcagg	gatattcgtc	tgatttttcga	taacgacgtg	gaagaaaagc	480
agcccgttgt	tgcatacagt	cctcgaagga	gaaactgcat	gctgaaatgc	cgcgaccgt	540
gtgcttaacc	gttcgcttat	tatgcttgta	gatggtttgc	atcatcagtt	cacaagtaca	600
ggcgactcgt	tgcccaattc	cttgaagtag	atgtcggacg	gttcgaaggc	aggcgtcctt	660
ctccggaata	caggaattgc	gcttcggcct	gtcctggctg	ccctcggcat	agccggagca	720
agctccgntc	tgccccgttg	gcacaagaag	tctttcatct	ccacattgag	tttctccggc	780
tcttggcata	cttcacattg	taggagtaaa	atgaaccgtc	ttcacaaatg	accacagggt	840
ggtctncgtt	tcaaaattcc	gtacggcgagc	cttgacacgc	agacgttttc	ggcatcttcc	900
gcttttccgg	tatc					914

(2) INFORMATION FOR SEQ ID NO:1005

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1005

cggatgacga	atttacagta	gatgtacaca	tcgctttccc	cagcaaggtc	ttagcaatca	60
attcgcttct	ttggaacat	tgctcgattt	cgaagagcga	ttgcagggtc	tcgcaccttt	120
gttttcgtac	gggaggtgca	gatgctttgg	aggccaatct	gatcaaaggc	ggcgatttgg	180
acaatgcttt	ggtgattacg	acgagccatt	ggcacaagat	cgactcgatg	cccttagtga	240
tatgagggag	tggagcgga	gcagggtcaat	gaattggggg	acatcaacaa	caagctctaa	300
tctacgacaa	tgaaccggca	cgccacaagc	tcctcgacgt	attggcgatc	tggctttgat	360
cggaataat	attcgcgagc	gcattattgc	cactgtccgg	ggcacagcat	caacaacaag	420
atggcgcgcc	tgattcgcaa	aaaatcaaac	agaacgaagc	acaggcccct	gtctacaatc	480
cgaacaaaga	ccgatcatgg	acatcaatcg	gatcaaagag	cttctacccc	accgctatcg	540
ttcctattgg	tcgataagat	catcgaagta	gggcccggact	atatagtcga	gtaaagagcg	600
tttccggcaa	cgaaccattt	ttccccgggt	acttcccggg	gagcctgtga	tgccgggaggt	660
cctgcaagta	gaggcaatgg	cgcaggggga	gggctcttgg	tactcaatac	cctgaccgag	720
ccttcgagct	actcccatac	ttccttatga	tcgacaaaagt	gaaattccgc	cgtaaagtgg	780
taccggcgac	actttggtgt	tcaagctcag	aatgatttcc	gagatacgca	gagagtcgct	840
aatatgcgcg	gcttagcttt	cgtaggagag	cagttagcct	gtaagctgaa	tttatggcac	900
agataatcca	gaataaagaa	tgatgtcaga	gcaaaaatca	gtccgtttgg	atgggtggat	960
ccgcatgccg	aagataggaa	taggtgttga	gataggtccc	attgccgt		1008

(2) INFORMATION FOR SEQ ID NO:1006

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1395 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1006

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ccttgcgtag cgtagagtcc gtatgggtcc gttggaataa atatatctgt gtttgagggtc      60
atctgggcca ttgttttggg gggtagcaga gagcaatcga tatagggata tgccccctct      120
cgcagcacia tctgctcaat gaggtgacga gagactgata catctgagta tgattgttgc      180
ggagtccgat gctttctcga tgagaatcag gccgtagttg gcgcagggtg gtggctcaat      240
aaacttccac tatctagctc ctctagattt agctcgtctt cgctctcgat atcactacga      300
gcttgccatg gctcccatg gtaacgaagt cgatcgaggg agcatggact ctgggttgtc      360
tacatcaaat agatcaatgg tttctcgcca tgttctagta ttgcaggagg agtgatgatc      420
agtacccttt tgttgcgacc acatcttcgg gcatagatag gaagtgcctg acgagtaatg      480
tgcccactac gttttgcca gtcccagac atccgagagc ataaatcctc catgttcctc      540
atgatgctat agcactgctt gaccgctct agctggtact cgaaggcacg aaagtgctag      600
gtaggtaacc cgtaggagtc tcgttgagat ctttgtcact agagagctga acttgtagt      660
tagtaacttg atatacagtt cgtatgagat agtgattgct cctgcatctc ttgtttggca      720
gatttcatgg tctccgagca ataggtgcag tcttaataac ttgctctaga aactcttggc      780
tccatcttcg gctatagtcc atttttcatc aaaccaatga ctatgtccct tggagcagat      840
cccttttgag gtttagcagt tactactcga gaatcactct cggataattc aactccgcat      900
tccctattaa ccctcggtt gtaaagttag actgccgata atccctagag agtcgtctac      960
acccgagcaa atataacact ggagtgtagg aactcaatct caccctgagc atttcgtaga      1020
taaatacgtt ttgtattttg ctagactcgc agtgcttgag caatagtttg atgacttgat      1080
atactcctca tggagctcta gattgtgtat atcagtacga ataaaatgtg aggaaaagat      1140
gcgtcttgat acttcggatt tttgagtaaa gaggagatac atacggatcc ttacctatga      1200
ggatctgcaa catagttccc tctcttctag aaaggcagat agttccttta tcacaagtgc      1260
catacctggg acatccaata tcccgtggct attcgaactc gattgaccca atccaatcta      1320
aaaattgttt cagacaggaa ctcatagaaa gttcgggcga agaattatca ataagggatt      1380
gcgtaatagc atagt

```

(2) INFORMATION FOR SEQ ID NO:1007

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2792 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2792

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1007

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gtacctggca ctgtatggta ggcaatgccaa aaagatggcg gtcggacgat tgcagatgga      60
gattccttct ccgcaaggag gtagcatctt attgacagtt ctcacgatcc tgcggcagat      120
ggatgcattc gtctcagctg ggaaaatatt attacacctt tggcgaaatc cttgaaatgg      180
ccggcatcct cctatcccc cctatctcaa tcgggatacc gaagaggaag acttggaaac      240
ctaccaaccg tctatgccaa aaatctgggt tcgggtggcg cacctacggc cgggtgcatt      300
tcacggagga ggagttcgaa cggctgagag cacagggtac tccgttgtcg atgttaccct      360

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gcatgtcgga	gccggcactt	tccgtcccgt	caaagcgaga	ctatcgggtga	acaccggatg	420
caccgtgaac	tgatagtcac	tagcgctcat	cgctggaagc	cctgcgtgat	tggcaaggca	480
gcatcgttgc	gttgggacga	cctccgtacg	gacgctcgaa	agtctctatt	ggctggggaa	540
agcctctcct	ccgcttcgca	tacatcgcaa	gaatccttaa	aagtcaatag	tgggaagcct	600
atgagaatga	agatgtggcc	ctgtctcgta	gtgagacatc	cgcataatac	tcgattggat	660
ggacgagcaa	ggagtcgaaa	cgctgatttt	ccgaccgaga	ttctgattgc	tccgggctat	720
cgetatcgga	tggtcatgcc	atgattacca	attttcatca	accgcgcagt	accctcttgc	780
tgctgtctcg	gcttttatcg	gagagaattg	gaaggctggt	taccaccatg	ccccgaatcg	840
ggctatcgct	tcctgagcta	tggcgatggt	tcattgctga	tccttaaagg	cgatttctca	900
atctttcaaa	ggctatttcc	gcgctgtttc	tgaccatgcg	cggatatata	gcatcccttc	960
cggcctgaac	atcgaccttt	ttctttgcaa	tatctccaat	aaaacaggaa	gagagtgtgt	1020
cgaaatcgct	cgaaatagcg	atatttgac	acactctctt	ctttttgggt	gcggctggga	1080
gactcgaact	cgcacgccgt	gaagcaccag	atcctaagtc	tgacgtgcta	ccaattacac	1140
cacagccgca	taccgcacct	gctcgacagg	cttagcagca	caaataatac	cgaatctttg	1200
gattatgttc	cagtatgttt	ttattgattc	tctaactgta	gcaattcaaa	aggaaaaaag	1260
ccgcggaaca	gatgtttccc	tttttattct	ttccaaaaat	agtcactatc	gagctttttc	1320
aaccataagt	ctgttggtga	gtgcatccaa	ggttgtaatc	gatcattaat	tggttagttg	1380
ttccccatca	atcaatacaa	ttttagtctc	attcctgggt	gataagttaa	tgcttccttt	1440
gtaaaatttg	aagttgttat	aaagatccct	ttttggcacc	ttgtccagcg	agtgtctcaa	1500
caaacttttg	aagctcaggc	ttcctaccac	attcccaggc	ctccagcgct	tggcttggat	1560
ataaataaat	caagtcccag	tttatcttct	tttattgttc	cgtaatttcc	ctcgtctcac	1620
ttttgcctaa	tgctttaccg	gcacccctga	tagaaccttc	atatccattt	tgactaataa	1680
ttcgacaaca	agcctctcaa	aaaaagcagg	tgaaagtcaa	tgactttatt	aagtaattcg	1740
gaagccaatg	attttctgat	tcttgatatg	ctttgtcaag	gacctcttca	ggtgtttgtt	1800
cgtgtatttt	ttcgttatgg	attcttcttc	tgtttcgccg	tcatttcgat	aaccgttctg	1860
aattctataa	acgccggaaa	ccgtcttagg	tattttgtgt	ctatttttgg	ggattcttcg	1920
aaagtatctc	tctgccaaag	tcagaaatta	taagaatcgc	cgtttaggcg	aatcaagaag	1980
gccagccttc	tttaggtatg	ttcttgcccg	ccaacgcgat	tgtcaaaaac	agctttggag	2040
ccacttgcca	agagttccgc	gttcttcgtc	cgtgacctca	aattcggctg	ccaaatgttc	2100
gataatactc	tgtatttggg	ctcttggtcca	tctgaaacac	atttcagcaa	tggaagatca	2160
gggtttggaa	atctggtatc	atatttctat	tgttttctcc	attataaaaac	ataatttttc	2220
tcttgacca	tgagcaactc	gaaatagtga	agttgtttga	ctttgcgaat	atactttatt	2280
tggagatggt	atacatcttt	ttggtgtctt	gtggactata	catgcgttgg	gtgagtaatc	2340
atttataaag	tcgactatta	ggagttcgga	atctcttctc	gtcctgaaac	tctatatact	2400
ttaaaagcaa	aatatagacc	tttatcagta	ttgatggaga	atccaaaaca	acacgaaaaa	2460
agttttcaac	aacgaagatg	agtttggaat	cattccaaaa	agaacctaaa	tacatctcaa	2520
ttttgaaagc	aaaaagggtg	gaaaaggagt	ttttcagggt	gaaacatgac	ttttagaaga	2580
gaagataacg	atctataaca	aacggtttac	gataaatata	tagttcggtt	gcgatttgta	2640
tataaacgtt	ttcaatttat	acatagatcg	aaactcattt	ctatataaat	cgcagctgaa	2700
aaaggtcggt	ttgggcagtg	ataaaacaaa	ggcaccacc	aaatctacag	ggaactcggg	2760
gggtgcctta	tatgtttgag	gagaggggtac	cg			2792

(2) INFORMATION FOR SEQ ID NO:1008

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 742 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1008

cgaatcgaga aggtgagttt gaacttaggg gtcccccccg taagcacagg gtttggggaa
 tgacccatga tgcgaacggt ctccctttcg aaataccttc tctttcagtc gtttcaacag

ccagggagat	atagctacca	cttattaata	gcgaatagcg	aggcaacttt	gaatgaatgg	180
tgcgactatg	cacaccgggc	ggcatcgtga	gggtagaagg	tcgtttttgg	aaaatgactt	240
acaactacca	acctacaatg	cagtctgcac	cgggattaca	ttcgaaaatc	aagaatagaa	300
ggaacgatcg	tcttgatacc	caagcccaaa	gtctcgtgc	ctctgtgtcg	gaatcgggtg	360
cttgcatccg	aaccgaagcc	gggagggaa	tttcctttgc	gaagaagacg	acacctttgt	420
gtctcacgat	ggtaacgaag	tacgataggc	ggtaaaccct	tcttgctcaa	taccaacgta	480
aagattgtgg	ggacgtatct	caaaagtatg	ccgtgggggt	aggagaaatt	cgattcctga	540
gatttgtgcc	caaacagtat	cacaacaaaa	atgaacacaa	gatgaaacaa	caatacttgg	600
catacagctg	tcacaatgga	caaagtgttt	tctttcatct	tcctgattgc	aggatgtaca	660
ggagcattat	cggggcagtc	tccatccaat	cgagaggata	cgcgacaacc	ggcatcttag	720
agcctgtatg	ctgccgacac	ag				742

(2) INFORMATION FOR SEQ ID NO:1009

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 753 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...753

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1009

ggggacgatg	tcgtcgaatg	tatagttgcc	gaagaaaaca	atgttgaaac	tcgtgactt	60
ttggcatcga	agtccgagaa	catggccatc	acattgttga	atagctcggc	ttcagaccgg	120
gattgccttc	cgtcacgaat	agcggatcgt	gatgtcctga	acgggagcga	tctgattgat	180
ggatggttgt	gtcgtggtcc	tcggtagtcc	actcggaggt	tggtagtcct	gtcgggtttg	240
tagttattcg	gagcatcggg	gagagattga	cacgattgaa	agccagtttg	tcctctctac	300
tccggctacg	ctccgatagc	tgacagttct	gttgggatcc	acatgaatcc	tacgggtgtag	360
tcccacgttt	tggcaatcct	cttgaggttg	agccgatgcg	atactgggtg	aactcgttac	420
tgtaggagag	tccgtactga	cgtctaata	ggagtattgc	ccgtcatcgc	ccagtcggta	480
cacctcacga	ccgaattgcg	acgggagaaa	cgtctgttca	gaatcgcttg	tcggaagtat	540
ttttacccaa	cggttccaca	tacgagaggc	gaagccgata	ttgcaggtgg	agttgtcggt	600
gaattgcttt	tgattcgtct	ccacgctttg	gagcacacct	gatatatgcc	atctccgtct	660
tcgtcgggtca	gaccgccact	gacggagcac	tgatcgtagc	gccttcgtcg	ttgagcttgt	720
gactgatatc	caatttcctg	tcagtctgaa	ggt			753

(2) INFORMATION FOR SEQ ID NO:1010

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3362 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...3362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1010

gaaggatggg	atcttcgggc	ctcggctact	acgatttgct	catcggtatg	acctgaccgt	60
ctttccctcc	tactatgaac	cgtgggatat	acaccgctga	aagcatcgct	ttcgggtattc	120
cgacggtgac	gaccgacctt	tcgggctcgg	cctttgggct	atgcaggagc	gcggtagtgcg	180
gaacgacttc	agtacggcgt	agccgtcatc	aagcgtaccg	acgacaatta	tgcagaagcc	240
gtacagccat	cgctgacctg	ctatatcggt	ggccggccga	aagtacagac	agaaagcctg	300
ccggctggca	gccatgcaaa	cggcatccca	tgcagagtgg	cgttgtttta	caaccgggtat	360
gaagaagcat	actctgaatt	gctcagtcga	gatgaaaaca	accgataatg	aaaaaaacgc	420
atctttgtag	tccattccac	gacaaaacgc	tattataaaa	caatgatatt	gaacatactg	480
cttctaatta	cggattggct	ttagtcggtg	gcggagccaa	ttttctcacc	gatggcgcac	540
ctccatagcc	aagcgatttc	gactatcgga	tttggtcatc	ggccttacgt	actggccttc	600
ggcacatcgg	ctcccgaact	caccgtcagt	ctgatggagc	cctgaaagga	agtggccgata	660
tagctatcgg	caacgtcatc	gggagcatat	ctttaacatt	ctggccatcg	ttggcattac	720
ggctctgatc	atgccctgac	catgtcgaac	agtagcattc	gtatcgaaat	ccctctaacc	780
attcctcctc	cgcggtcctg	tttttcatgg	ccaacgaccg	cctcttcgac	atgccggaga	840
gaatgtgatc	accggtaccg	aagggttcgt	attactggct	ttttcctgat	atcttctattc	900
tacactttca	atatgtccaa	aggggaagaa	tccccgggca	agtgaggcag	tttgccctac	960
ccctatccat	aataatggta	tagggcggtct	ggtagctctc	gtcttcgggg	gcgatctgtt	1020
cgtggacaag	cagctatgct	tgcgggacgc	atgggagtaa	gcgaatcggg	tgtcgccaca	1080
ccatcgtagc	aggaggaact	tccttgcccc	aattggtcac	caccttatgg	ctggcatcaa	1140
agaagcgccc	gggcatggcc	atcggcaata	tcgtagtagc	aacctcttca	acatcctgct	1200
catcctcgga	gtcagttcgt	ccatcgcccc	atacggatcc	aaggcattac	ggtcgtggac	1260
tatgggattt	tcatctatcg	gcaatcctgc	tctacgtttt	cgcccttttc	ttcggagaca	1320
aaagatcaaa	cgcttcgaag	gcagcatcct	cttatcgctc	ttcatatgct	atcgggtctat	1380
ttggctcatga	ccgcctaaag	aaagccatac	ggggaaaaat	ggcaagaaaa	ggctcgacgc	1440
cattcgccgg	catattctgc	ggagcgaaat	tccaccaaac	aggaactgca	aacagccttg	1500
ctgtccgaag	acattcccga	tcgcaggcca	cactttcacg	cgatctggaa	atcctcgcca	1560
tagaaaaacg	gcctcgccct	cagggaaaaa	agtgtacatc	ctgcctcgag	acaatcgcca	1620
ccctcctctc	gcggtgaact	tcgtatcgga	gcaccgaag	ggtttacgga	ccggtcgata	1680
caggagagat	gcttctgctc	aatacggctg	agggcatgca	gcccgtatcg	catcggaat	1740
agaggagctg	tctgcgccc	aagtgcggac	gtattcttcg	gcccgcagca	catcggtgtc	1800
atcgggcaga	aagaaccaca	cgtcaggctt	tactctgcgc	cattgctccg	gccattccc	1860
aatcctccgc	tgaaaaccga	cacacctcct	ctcggcaaac	cttaccaaac	tcctacatcg	1920
tatagtcacg	aagactgaac	gacaatgagt	gatgacagga	cgacatttcc	atgagatcga	1980
acgaatcaac	aagtatttgc	tctctctcaa	agactattcc	cctcgcata	caaaaacaca	2040
tcactacaat	caaacttaac	gggagcattt	tgaggcggtt	gtcccctgag	gtctattggg	2100
taatttctct	atgcagcaat	atttttacat	atctttgtcg	cgtttcagtt	gaacatttca	2160
aagaacacat	tccgacacct	ttggacatta	catacttcta	ctatgtcctc	taaacgggtat	2220
acaatctcaa	tccaattagc	ctcctcgtct	acgatgttac	ttataaatca	aagtcattag	2280
caatacaaaa	aaatactatg	atcacctttt	ttcaaaatta	cgcaactcgg	attgcagtct	2340
tcggcagaat	gctctaacac	ctatgtccac	cgccgtgctga	gccgcagcta	tctgctgttt	2400
tcctggccct	tttacagctt	attgtcaatg	aatcctatcg	ccgagtattg	tctcttggaa	2460
tatggagggt	cgatttgcgg	atattctgat	tgccccgatg	tttggagctt	ggtcgtttat	2520
ttattacttg	cagccatccc	gagccgtcgt	tatatcgagg	cattatgtgg	cccgtgatcc	2580
tgatcgcaac	gcttatgacg	tagtcgagat	gtacctgctc	aggtgctacg	ggactgtttt	2640
tatccctata	tagctactgc	atcttcttgc	actacatcag	ccgaggccag	tgcattctggc	2700
gagaggcttt	ctcttggagc	gatattggtc	atgtcgcagg	ttggatgcga	tcgtttggct	2760
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tcgacatgtg	gtcagtgcca	agcctaatac	tcaaggttcg	attgcagcga	tgattctatt	3240
ggagaaaagcc	gtgcaggagg	aaaatgggtat	gacgatccta	tgcgataccg	ctactccgct	3300
ccgccgggta	ctataccttc	tggctgagtg	ctaggaaaaa	ctgggctttg	cagtgcaaaa	3362
tg						

(2) INFORMATION FOR SEQ ID NO:1011

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1011

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gggctgatgg atctgaggct gaaagccaa tgcgaccgag cagctcacia gctattgatc      60
ccgaagccaa acgagtagtg ctggggcggt ggcaactatc gataccgaca tcgcatactt      120
cagtgcagat acgacggcag ccgatacact cagaaagagc cattcgactg gcaattcgag      180
ttggacaggc tggatcgaag aatataatccg ctgaagtccg gatgccactt gacagtgtac      240
tcctcagaca ttcgtcggaa aggcggcaat agcgaagacc aaaatggata ttgcgacatg      300
ctctatcagg tcggcatggc gcagttggac cggactgttt tgtttacgat acggacgagg      360
gggaagcttc gcccacctct ttcgactatc gcacattgct ttgaacgatg tttccctcca      420
agccaaagat atttgtttcc agacgggtgat atggagcttc agttgggtcaa cggatcccta      480
cgggagcgcg tcggttcgaa ctacagcggt tgtccgggag gtataggatg gatcggtttcg      540
tttccttctg acagaccttt cccttgccac cgggcacagc catatcaagg agaagtccga      600
ctaccatgga gtatcttcga aaaagatccg acagccagat caatctctct atggatgctt      660
cgatcggatt ggaggatgta aactattggc cggcgataat ttccaactac cctnacgcag      720
gttagtgctg tatcccgga tccgggtggat atagtgtatc atgcacaggc aactcgcag      780
a

```

(2) INFORMATION FOR SEQ ID NO:1012

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1926 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1926

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1012

```

gtcttcgcgg acaaaggata tgcttgccgg gaaaatcggt cctacctgca acccatcacc      60
ttcaagacgg catcatgcac aaggcacaac gcaacaggca ttgaccgagg aagagaagca      120
aggaaacaaa gcaatcggtc cgatacgagc accatcgaac gcaccttttg cagtattcgg      180
cgggtggtttc atggcgacga tgtcgatacc ggggacttgc caagacccat actcaaaaca      240
ttcttaaagc atcgccctta atttatacag aacgcggggg ataattatgt cctctccgta      300
ggataaggca taacccccct tgaggagctc gtgcaagtag ctctcaaggg ggatttacaa      360
ctactttcac tccttactgc caccctttt cctccccccg ttttatgtga agaattcctc      420
ttccctccat ttcccttatt tcaaaggctc cataaaaacg ctatcaaatt aggattatgt      480
cctattttcta ccgaaactat aaggctctat tggaccttgg tcgaagaatc aaattcgaat      540

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aacgaaaact	aactctctgc	ggaatttggc	tttttaaggc	tctgctgttg	cgaagaaaact	600
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atatagattt	tgataacttt	tcttgattca	tgccaagatt	tatctctttc	ataaaggaat	720
tcataaggcg	tattcctcga	tatatgggat	cataattttt	tatcaacaag	actgccattg	780
caacaaaaca	tactcgttat	tagagtctcg	aatctccatg	atcaagccgg	gtagcctcaa	840
agacatatgg	ccccatagga	taggaatatc	ttctgaatac	cagcctgata	aaatccgtcc	900
tctataagga	ccatgtagct	tttttacatt	catatccttt	gatattcctt	ttcttcattc	960
agtgaatttt	cccagtccaa	ccgtggggct	atcttctcat	aagtgaataa	ttcaccgaat	1020
tcagttccta	tccttactgt	attgatgtcc	ttttggggat	aattttctaa	tacttggttc	1080
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aagactgtca	aaagaatttt	ctcattttct	tgttttttta	agattataca	tattttaaac	1860
tttcgcaagc	aaatatcggt	aattcttttg	atatatacaa	acatttttga	atttgcacat	1920
tcacac						1926

(2) INFORMATION FOR SEQ ID NO:1013

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4312 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4312

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1013

cgaggaggta	tggcttgccg	catcagtcga	tcgaagaaag	cacagtcctcc	cgtatcacga	60
attgctgctg	catcagcatc	aggagagctga	cgatgatatg	gcgataatcg	catatgcggt	120
catcgtatcc	gcattgcttt	ccctgtaaaag	agaaggccgt	acaatatgaa	caagaaggaa	180
aagatgaaag	tactgcaagg	cgtttggagc	gcaagatgag	cttgatatgc	agtgcctatca	240
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gatttgggtg	gctcttttagc	atagcgatgc	tgtctgaaat	accctggctc	gctatatatg	360
ttccggccaa	tatcgatgcc	atgcagatcc	atcgatatat	accggaaggg	acgagacgaa	420
gcggaacagg	cagtcggacc	aggcacgaat	ccggtgattt	ctgtggcgag	catgagggct	480
atggcaccga	gacgatgata	tagaatcgga	gaccatcgcc	cagtatgcgc	ttcagatatg	540
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gtagcagcag	ggccaagctc	taagagcgga	aaaaaacact	cgcggctttc	tgagagggaa	4260
gccaagagaga	gagaaaaaaa	gagggggagc	tgtgtcgcgg	atgacacagc	cc	4312

(2) INFORMATION FOR SEQ ID NO:1014

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1181 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1181

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1014

ccatcgatt	gaggatctta	catcgacgca	tcactccggc	tattcgagaa	aagctcgttc	60
gcgtgctgcc	accatctttg	aagattgagg	cagataagga	ctcattgggtg	gcaagaatac	120
tcattgcttat	ctgcgggttc	ttcgtcttca	tctttgatct	tgatcatatca	ggcctctgtg	180
tatcctctct	ttgcgtcctc	tgccaacaaa	aagactatta	gccttttagt	gggaaaagggt	240
gtattttgtg	cggcttaatg	aaaagaagtt	taatcaatcc	ttagtaataa	caagagaaat	300
ggaaattgca	aagattattg	gcagggagat	cctcgattcc	agagcaatcc	gacggttgag	360
gtagatgtac	acctggcctg	tggcataata	ggcgcgcggc	tgtaccacgc	ggagcttcca	420
ccggtgagaa	tgaggctatc	ggcttcgcga	tcaggataag	gctcgctact	gtggcaaagg	480
tgctctcaag	ctgtgaagaa	cgtaaataaa	gtgatagatc	ccgcactctg	cggaaatgtcg	540
tattggaaca	aacagctatt	gaccgcaagc	tcacgaatt	ggatggcaca	aaacgaaaag	600
caacctcgga	gcaaatgcca	tgctgggcgt	atcactgccg	tagccaaagc	agctgcagct	660
tatttgata	ttcctctcta	ccgataatcg	gcgggttcgaa	cacctatgtc	ctgcctgttc	720
ctatgatgaa	tatcacaacg	gcggttctca	ctcggacgct	cctatcgcat	tccaggagtt	780
catgtccgcc	ctgtgggagc	atgctgcttc	cgtgagggt	tgcgcattggg	tgccgaaagt	840
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cgagttctta	aggatggtat	ttacgactac	actaagttcg	aaggcgaaaa	gggcaagaac	1080
gctctatcga	tgagcagggtg	gcttatctga	ccgaactggg	tggcaagatc	ccatcgatct	1140
atcgaagacg	gatgagcgaa	aatgactggg	aaggatgaag	a		1181

(2) INFORMATION FOR SEQ ID NO:1015

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 2018 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...2018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1015

gcaggagtga	atgtataacg	ataaaatgta	aggaacgatg	atgaaaagat	accgaatatg	60
atttgataa	tcgggggtact	ctcccttggt	tttcgggtcat	gtgtcaaatt	gcagtgtgaa	120
gagaaaagct	ataaaagcgc	gaaattgggtc	ggaaaacagc	ttcgagttgt	tgcttgacga	180
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gcacgttat	gtgccgactg	cttttcaccc	ctatcgcgca	gatttgcgag	tacgccccgg	360
tatatcgggga	tccagccata	cgccggatgc	tcggccgaac	gttcgccttt	cagaccgaat	420
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gtttcagtag	aggagtgcgc	ggataggatt	tttgcggaat	acatagtgcg	gcctgtcgcg	1260
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taataatagc	aacgcgatgg	ggcaaaaagg	ttgctacttg	atattataaa	atgtattgac	1620
ctccggatgg	agagtgtatc	cgaatttctg	tcggacattg	cctatgtctc	ttctgccaaa	1680
gctcccacct	gagtgcccgt	agctccgccg	tagttaccaa	gaccaaagcc	tgatgtctcat	1740
agacacctac	tgcaccggag	cgatcccttt	gtatccgcgt	tgctcgatca	gccatccggc	1800
cggaaactttc	acgtgccatc	cggttgagga	tagcttggtg	tggaggata	ttcggttttgc	1860
aggtattgaa	tttctcggcg	gataccaccg	gatttacgaa	gaagctgccc	gattgcctat	1920
tgtggccgga	tcgggcaact	tggaattgcg	gatgcgtatg	ccgtatctcg	aatcgattgt	1980
agggtagggg	tgattcgttc	ttcttccaaa	ccttgggc			2018

(2) INFORMATION FOR SEQ ID NO:1016

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1810 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1810

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1016

tgctcgtgc	tcggttgaag	ggactggcca	aacagtatgc	cgatcagatc	aaacgttggg	60
caagctcatt	cggaattcc	ccgatagccg	ccatctgaag	ctgctctcta	tgaaaagggg	120
tgtggtgcag	tgcttagcgg	taagcatacg	tggcagaaga	agctttcaat	gcagttgtca	180
aaagaagccc	cgacagcgtg	aagcccagaca	gtcgtccttg	cagttgggtc	tgctctatta	240
taatagggtc	gaacgaaaaga	ggctattcgc	acataccaac	ggatcattga	ccgcaccctc	300
gtagcgaaga	gacgactgta	gccctctcgg	atctccgttc	tattatctgg	aagaggatcg	360
gatagatgag	tattctacct	atgtgcgtgg	tcgaaagata	aggtgtccat	tgccccatcc	420
gagacggaac	agctcggttt	ctttcggccg	agcgcaagta	tcgccgtcgc	cagcccgatg	480
ctcgtcgaga	ttggaggcct	atctggagcg	ctatccacag	ggaagcgatc	gtcacaaga	540
gaattgtatt	tggccgatct	cgattatcag	gccggcaatg	ctgatgcgct	tacaatcggt	600
attcacgggt	ggtgaacagc	cccggtttgc	ccgaagatat	aagatcgatg	ctcgcctgcg	660
tctcggtcgt	atgcaatacg	aacgcaagtg	tacaaggctg	cgctgcaatc	attccaatcc	720
gtactcgata	cgatgtgcc	gaagctgtcc	gcgatcaggc	ggtgcaggga	gtaaccgagt	780
ctgctatgcc	gataaggatt	accggagggt	gatcgacgta	attgccggat	tgagaatcag	840
gcagctctgc	ctcatactct	tcgtctctat	cgtgccaaaa	gtatcaggct	ctgaagatga	900
atcgggaagc	gattgccgac	tatgaactcc	tgccgaggat	ttctcaacgg	ccacagggtgc	960
cgaagccgtc	gtgatgcagg	acagctggaa	atggaagcca	agcgtttgtc	caaggcgaag	1020
tctatctctc	aaaatttatt	gccaagagta	ctcctcagca	gtattggttg	gcacgaggtt	1080
catcctcttg	tccgatattt	ataagaaaga	aggggatacg	tttacggaag	gcagtatattg	1140
gaaagcttgg	aaaagaacta	tcctaatacat	gaggatacat	tcacgaacag	atagcccaac	1200
ggcttgaata	atcttctgta	cgattatcac	tctgagttgg	aaataatgaa	cagcatcatg	1260
aaatatcaat	tataacggcc	gtcataatgg	ctctctctgt	atcatccggt	tgccgtcaaa	1320

cccacgaaat	acagaaacca	aacgccccga	cacgctgcgc	agggagctta	cttcgttaat	1380
gaccagactg	tggagatgga	gcatgcggat	ccgcttcggg	cgcatacaag	gccatcgaac	1440
ctcgattaaa	acctttccgt	ccggaatata	caagcgtaca	ttcggatttg	tccttgaagt	1500
ttcctcttca	ggcaggaaca	tcttccgaat	atcctgccga	cggaagggtca	tatgaagcac	1560
cggggggtact	gaatatcggt	atcggccata	cgctaaacca	gcgaatggat	gccggcttcg	1620
tctgatagat	gcagagcagg	agagactgaa	tcttttcctc	tcctatgtgg	gatgaaattg	1680
gctttcaata	ccggtgactt	cgacggcgac	agaaagatag	acgaaatgat	ggcaggaatg	1740
gactacgagc	agcgcaggcc	ttccttgtgc	ttgctaccgg	cttggtattat	tcgaaccatt	1800
atttcaatac						1810

(2) INFORMATION FOR SEQ ID NO:1017

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4753 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4753

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1017

aggttcttcg	aatgcgtctt	tcatgctgaa	gttggtgagg	gactatttcc	tctaccgatc	60
gatgacgaag	aattggcggc	aatagcactg	acgatcgggc	cgattgtcct	tttttcgtag	120
gaaatcggcc	ggtattagcc	accgacctgg	ccaagtcttt	actccgctac	ccaatttttc	180
tctgtccggt	ctccattcgc	tatagtaaaa	ccaccatcc	atatcaacac	agcagctgca	240
tacaaggtct	caagcatgtg	ggcaaacgag	agacaatgcc	ggatgagatt	gtttcatgcc	300
cgtagaagaa	tggagaggga	aattggtgaa	cgatttcgaa	gaagcctttt	ccctgaacat	360
cctcgacttg	ccgaactaaa	agaaatgctc	tacggtcggg	ggctttgtac	gctgcaatgt	420
ccggttccgg	atctgcaacta	tccgtctttt	ccgggaaaag	cctcagctcg	ataaggctgc	480
tatcaccgac	gcttccgatg	gcaaagcatc	atcccctgac	agattgggta	cctacctcca	540
aaaagaaaatg	gaggccaaaag	gatgggacga	agcggatgtc	attctcttag	cggagatgct	600
tatgtgggat	accgcgtcct	cggagctgcc	gtcgtagaag	aatttttagaa	gccgaagggc	660
ttcgtgtggc	tatcgttccc	caaccgactg	gcgcgacgat	cttcgggact	tcgcaaat	720
gggacgtcct	cgcttttttt	cggagtcttcg	gcaggagcga	tggattcgat	ggtgaataaa	780
tacacgcaa	tcgccgtctc	cgcagcgaag	acgcttacac	accggacaga	cgtcggatat	840
gcgtcccgc	tacccaacca	tcgtttacac	ccgcatactg	aagagctggt	tccggatgta	900
ccggtcattg	tcgggggggat	cgaagcttct	cccgcgggct	gacgcattac	gactattggc	960
aggacaaatt	gtcctccggg	tactctatca	atcagggtgc	gacctcctga	tctacggcat	1020
gggagaactc	ctttgcacga	gatagcacag	cgattgatag	ccggcgaacc	gttcgatatt	1080
tgaagagcat	tcggcagata	gcctatcttg	ttccaaaagg	aaagacactg	tgccctgcga	1140
aaacgatcgg	catctcttct	cccatgaaga	atgttttcgg	acaaacgcaa	gcaggcacag	1200
aacttccgag	agatagagat	acagacaatc	gctacgaggc	agaccgcata	cttcaggccg	1260
tcggagattc	tacctcgtgg	tcaatcccc	ttttccaccc	atgagtacgg	cacaaataga	1320
tcacattcgt	acttaccgta	cacgcgcctg	cctcatccgc	gttataaggg	gagattattt	1380
cagcctatga	gatgatcaag	cactcggta	atgttcatcg	cgctgtttcg	gtggttgtgc	1440
cttctgtacc	atctcgcccc	atcaagggaa	tttatagcct	cacgcagcga	agcgtccgta	1500
ctccgcgaag	tgaagagagac	actgaaatgg	aggatttcaa	gggggtacctg	agcgatgtcg	1560
gaggccctcg	gccaatatgt	acaaaatgca	gggtacgac	ctctcgatct	gcaaacgtgc	1620
aaaaagccga	gttgcatcca	tccgaatgtg	tgccecaatc	tgaatgcgat	catcgtcctc	1680
tgctggattt	attgagaagg	atcgacaaga	atcccgatc	aagaagagct	ttatcggcag	1740
tggtgtaaga	atggatctcc	tcctcataat	tataaagaca	aggtactgaa	gaaagctgcg	1800
gacgaatata	ccgggatctt	atcgtaaagc	atgtatcagg	acgtctgaaa	gtagctcccg	1860
aaatagctcg	gatcgcgtac	tcaatctgat	gcgcaagcct	cctttccggc	attcgccgaa	1920
ttcaccaaac	gtttccaacg	tatcaacgaa	gcacatgggc	gcgtcagcaa	ctcatcctt	1980
atttcatatc	cagccacccg	ggctgtacca	agaggatatg	gccgaactgg	cgatactgac	2040

aaaaaagctc	gacttcaact	ggaacagata	caggacttta	ctcctacacc	tatgacctta	2100
gcgacggaat	gtactacacc	ggctaccatc	cttatacgct	tcagcctgta	tatacaccat	2160
caagaaagaa	gaaaagatgc	gccagcacat	gtttttcttc	tggtaaaacg	ggaagaagcc	2220
gacaagatcc	gtcgcgagct	acaccgaatc	ggacaccgga	tctcattgcc	aagctgttcg	2280
atcgactac	ttcctctcgc	aacatcgcca	tactcctccg	tccacgcaac	ctcgaaaag	2340
caaaagcaaa	agcgccattc	ttagcgacaa	ggattacact	taaagtcgga	aaatcttgac	2400
gaaggcgaag	gccttttgag	tggaaaaagg	tagagacgag	acgaaagcaa	cctcaaattt	2460
ccaatcagag	aaaagcagct	tttctcgggc	tcacaacata	gaaagaggcc	gcgccacctg	2520
ttggcgcggc	ctctttgctt	ggattggtat	cgatcgaagc	gcagagacta	tgcttcgtct	2580
ttggtctgct	cttcgtatct	ttcagcagac	gctcctgtac	atcggcagga	accaattcat	2640
aggaagaaac	ttcatcgtga	aggatgcacg	tccacctgta	atagagctga	gcgaatggaa	2700
tagttggaaa	gctctttcag	aggcactttc	gccaaaagct	gctctaacc	ttgcggctgt	2760
tcatacccat	gatgatggca	cgacgtccct	gcaatcgctc	atgacatcgc	ccaaataatc	2820
ggcaggaacc	gatacttcca	cacatagaca	ggctccagaa	tcttcgggcc	ggcttctttg	2880
aaagccgtgc	taaagcattc	cgaccggcca	gcatgaacga	tacttcattg	ctgtccacag	2940
gtgcatctta	ccatcgtaaa	ccactacgcg	cacatcgcg	gcatacgaac	ggtcagcgga	3000
ccctgctcca	tgcgcgacat	gatgcctttc	agtatggcgg	catgaaacgc	atatcgatgg	3060
caccacccac	tacgtatta	acgaagagag	cttaccgccc	cattccaatt	ccactacctg	3120
cggtgcgcgc	ggagtgtacg	aaactcctgg	ccgccgaatt	tgaacgattc	gggcagtggg	3180
ttgtctcact	gtacggctcc	acgatcaggt	gcacctctcc	gaactggccg	gcacacccga	3240
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cgaggctcta	tatatcttat	ctcgatcttt	tcttatgttc	caatcgccat	ttaagcgtac	3360
gcagggtgaa	ttccccctgt	cgctgacaat	ggctctgacg	agctctttgc	tctgttccac	3420
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acgatgctcc	acgccctttt	cgttcagcgt	attgccaggc	gtacctcttt	gagcttcaca	3600
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cgaatatctg	actgagcgct	ccttggagcc	tcggctcagca	ttgagcagat	ctactccctc	3720
ggtgggggtac	cgctcattac	tttgaaatat	gatacttcac	caatatgcgg	ttcatcgtag	3780
tcttgaagaa	atggatgcaa	aggggagccg	aagcatcggg	ttcacttcc	ctccgctcac	3840
agccacaggt	gccggcagtt	tggttcacgc	ggaaccacgt	tgccgaggaa	ctccagtgt	3900
cggcgcacac	acatatcctt	tccgcactga	cacagaacac	ggggtacata	ccctgcgaga	3960
tcagaccgga	cggataccat	cgcgcattct	ctcttcagag	agacttccct	gatcgaagat	4020
ttttccatca	ggctctcatc	gttttcggcc	gcagcctcca	ccaaagctga	tgcatctctt	4080
tcgctttgtc	ttgctcctcg	gccggaatct	ccagtactcg	ggcacacctc	cttcagggtt	4140
ccagcgatac	atcttcatct	tcagccatcg	accacggcat	tgaacctcgc	tcccgcatct	4200
acgggatact	gtacggcact	atcttggagc	catatcgctc	ccgaagctgt	gatacagcag	4260
agtgaagtgc	gccttgctct	gatccaactg	gttggatgat	aagatggcag	gctgtgcaac	4320
tgctccacat	agcggaattg	attgataagc	cctacttcca	cccatactgc	gcatttacta	4380
ctacgagggc	acagtcctgt	acgttcagag	cgagacggta	ccgccgataa	agtcgtccgc	4440
tcccgggcag	tcgatgaaat	cagcttttta	tcttgccact	ctacagagaa	aaccgtagag	4500
aatacagata	tccatactcc	ttctctacgg	ggaaatagtc	gcagaccgta	ttgcctgatc	4560
tatgcttctc	ctacgtttta	tcactccacc	ctcgaagagc	atcgccctgc	aagggtgggt	4620
tttccggcgc	cggagctacc	caaaatggag	atgttttcac	ctcatttgct	ttgtacactt	4680
tcattggtgaa	gtcgttggtg	ttaggnnttt	aacaatccgg	attagaatcg	ccgcttcgag	4740
aggctgtaca	aac					4753

(2) INFORMATION FOR SEQ ID NO:1018

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1149 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1149

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1018

ctgagaattt	tatttccttc	tcttttcgtg	acaaatctgt	atgtatcaat	tatttcggtt	60
gatataattg	cgcaccaaag	atagtgccaa	tttgggagtg	caaaaataac	tgtagagcca	120
agacttatgg	caaggcatta	gtcgggggta	gctgtttcaa	aagtgtgcat	tcaaaggata	180
agcatttata	taagtaacat	aatacagatt	atcattgttt	gtgtcgattg	cattacacat	240
cttctattat	gttcaattac	gagtgaagcg	atcaactctt	ttacatcact	nttcatgcct	300
tcgaagataa	tcctctatgc	catcgactat	ataagaagct	gcacaggatc	tacgaagttg	360
taacagccca	cctgaacagc	cgtggctccg	gcaataagaa	ttcaatggca	tcagctgcag	420
atgcgatccc	ccccataccg	atataggcac	ttgtaccacc	ttggcggttt	gccataccat	480
acgtagagca	tgggcttgat	acatggcccg	gaaaggccct	ctgtagtggt	cgaaaggatg	540
gacggcggtt	ttccgcgtcg	atagccatgc	caagaaacgt	attgaccatg	aaatagcatc	600
agctccttcg	gattctacgg	cgcgagctat	ctctgtgtgt	ctgtcacgtt	gggagaaagt	660
tttacgatca	atgtcttgtc	ataagccggc	gcacagcttt	aacgacggat	gccgccccct	720
cacaggtaac	cccatagcca	tccctccctg	cttgacatta	ggacaagaaa	tattcaattc	780
tatactctga	tatgctccag	ttcattttatt	attcgggagg	tctctgcgta	atctccaaag	840
tggagccgct	tacattgact	atcatctccg	tccgataatc	ctgataaccg	gatatatatg	900
ctctacaaaa	tagtgaacac	ccttattttg	cagcccacgg	cattcagcat	ccccgatgga	960
gtttcggcca	tgcgtggata	gcattccctt	cccgatgatg	aagcgtagtt	cctttgacaa	1020
ctatggcact	aagcggctca	tatcgataaa	atctttgtat	tcgggtaccat	agccatacta	1080
ccgctggcag	tcattacggg	atttttaatt	gttaatcccc	tacctattct	acttctgttc	1140
gaaccattg						1149

(2) INFORMATION FOR SEQ ID NO:1019

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1987 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1987

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1019

cggtacccgc	atggaagctt	cagaatcaga	tggctaataa	tccggagacg	tgctggcctt	60
tgtcaagtcg	atagctacgc	cctatgctcc	acaggcacga	aagacgctgc	cgaacttcag	120
gcttatgccc	gtcctcaaag	tttcgaagag	accttacggc	tgctgactgg	aactactatg	180
ccgataagct	ccgcaagaaa	agttcggtct	ggatgagaac	gaagtgaagc	agtactttgt	240
gacggcagcg	tcctcaagaa	tggagtattc	tatgctgcc	acaagctcta	tggtcacat	300
tcaaggagcg	taccgatctg	cccgtctatg	ccgaagatgt	acggtatctg	atgttatcga	360
ccaagatggc	aagcagctcg	cactcttcta	cacgacctct	atcgccgtcc	gaccaagagc	420
ggagggtgcat	ggatgagcaa	cgggtagacc	aaagctacct	gctgaaccaa	aagccgggtga	480
tctacaatgt	tgcaactatg	ccaaaggcgt	tgatggctcag	ccctctctca	tcaactacgt	540
gaggtgacca	ctctcttcca	cgaattcggg	catgccctcc	acggtatggt	gccgcccagc	600
agtatccttt	gctctccggg	acgaatgtgg	cgcgtgattc	gtcgagatgc	cgtctcagct	660
caacgaacat	tgggctatgg	atccggagtg	tttgccaaact	acgctaagca	ctggaagaca	720
caggagccta	tgccgcccga	ttgggtcaaga	agattcagga	tgcgagcgac	ttcaatcagg	780
cttatctatg	ggagaaaatc	ttgcagccgt	aagcctcgat	caggcatggc	atagctcacg	840
gtcgaagagg	cggaggccat	taccgacgtg	gccaagttcg	aaaagaagcc	ctgcgcgaag	900
tcggtctcta	caatccgcag	atacctcttc	gtatcgctcc	tcttatttcc	gccatacttg	960
gagcaatggg	tatgcatccg	ttactacgct	tatctgtgga	cagaagtgtc	ggatcacaac	1020
gtttatcaag	gatgggtgaa	aacggtggta	tgactccgca	aaacggacaa	cgccttcgga	1080
tatgattctt	tcgctgggca	atacacagga	tttcaacgtg	atcttcacgc	gttcaccggg	1140
ctgcaaaagc	ctgacatcag	ggattttgctc	cgcgctgcgg	tctcatgtaa	tacagcaata	1200

gacgaggctg	tgctttcagg	ttccagatcc	tgcaagagca	cagcctcttt	gttattcacc	1260
ctataccaaa	aacgaacagc	tacgatgaaa	aaaggagatc	tactcatcct	tctgatcatt	1320
atctgatgtt	ggggcttatg	ctttccccct	ggacatcgga	aacattcaac	tcctcagtcg	1380
ccattatcct	tattatatcg	gtttcctgaa	gtttgccatc	tggctacat	cggtgaagta	1440
ctggccggac	ggatcaaagc	ccaacgatac	cctgccccac	ctatctatgg	gtgcgtattg	1500
tgatatgggg	cattgtcgga	tactcatcgt	cttcaacttc	gggttgtagc	aagccggtat	1560
acgagggtaca	tcgcaagagg	actgctcccc	gacatcgaca	gttcggtcta	tacggcttcc	1620
ttatctcttc	cgccatgaat	ctgacattcg	gccccgcctt	catggcgccc	accgcatcag	1680
cgatacatat	ctggagaata	aagctacagg	acgggaggaa	gcacccggct	cgccgttgaa	1740
cgagtggatt	ggaatcgctt	tatgctttcg	tcgttgga	gaccattccc	ttcttctgga	1800
taccggcaca	tacgtcacct	ttttacttcc	acccgagtac	cgcgtctttg	tggtgcact	1860
ccgtccatcg	ctctgggact	gatcttggcc	ttggcttcct	cccacatgc	aaggcgtaaa	1920
acatcaggga	ccgaacacaag	gatttgatac	caaatgatg	aatgccatg	aaggaaactga	1980
aatgccc						1987

(2) INFORMATION FOR SEQ ID NO:1020

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9190 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...9190

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1020

ccgtacccga	attttattga	ttaaagtgtat	ctgtttttgt	aacaaatgtg	tcgttttctt	60
ggacatccag	tctatagtta	gcgtccaatc	tcttgagtca	gagtcccaat	ctgtacaatg	120
tccgaaggta	agctttgcat	tcaactcaat	ttccaattgg	tgctctttcc	ttttatccat	180
ccattggcct	tccacaagg	tggaactcat	ggacaagaa	acagaagaac	agagcttgaa	240
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(2) INFORMATION FOR SEQ ID NO:1021

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 9492 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...9492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1021

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ggcgggtacc	ga					9492

(2) INFORMATION FOR SEQ ID NO:1022

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1022

cccggcatta	atcctaagac	gaaaaaatct	atttctatcc	ctgcccgtag	gttggttcgtt	60
tcaaaccggg	ctctactttg	gaacttaagt	aattcgcgta	tttcttaatt	atacaacgaa	120
gctaactacta	tcttaccgtg	cagtagctcg	ttgtgtatta	tataatagta	tcgaacagcg	180
aacagccttg	cccttgaagag	ggggagggtc	gttcgctttc	ttttggatcg	ggccgatttg	240
aggacgaata	ggaaataaat	gttttataag	acaaatcaat	aagatgcaga	tgagacattt	300
cgtgtcgttg	cgatcgtttc	gctgatcttt	tcttcttgga	tgagcttacg	gcgcaaaaga	360

atagttggtg ggtgggtgcc catgccggac gcagtacttc aacaacacaa gtgaggatat	420
gaagaaagga tggaaataccg ggtagtcctg cgctactatt tctccgatcg aatatattct	480
ttggctacac caattatgga ttcgcttctt ctttatcccc ttccggctat ttcgatgagt	540
tggtaacagt cccaatgcgc gcttcagacg ccatagtatt ttgccggcgt gggattaggg	600
tatgaatttt tccaaggcga ttt	623

(2) INFORMATION FOR SEQ ID NO:1023

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1023

tctacagact tttctcattt tcttccgatg ccgagattac cttggaggca atccccgacga	60
tctgaatata agctatgtac aggagcttcg tactctgcga tcaatcgaat aagtatggga	120
gcacagagtt tccacgatga agacctgact tcttcaatcg tcggcacaat gcccgccaag	180
tgctcgaagc agtggaacct gccgcaatgc gggacttacc aacctgagta tcgatcttat	240
ttacgtctac ccgggcagac gcctgctcgc tggcaagaaa atatctccgc agtggttgctc	300
tctccccacc ccacctgtcc gctaccatct gatatacgaa gaagaacccc cctgacacgc	360
ctactccatg caggaaaggt gcgcgaagtg gagaggaggt aagcctcgaa ctcttccgca	420
tgcttcgcga acagctgaca gagccggtat gaacactacg agttcaattg c	471

(2) INFORMATION FOR SEQ ID NO:1024

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 679 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...679

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1024

cctgaaagtg tgtgggaaag cgagggtgaaa aatacgagaa aacggacttt gttgctcgga	60
atgtgctctt tggaagactg cctgacgacg tgtatataac cattttcaat ttatatatag	120
atcgttttca atttatatat aaatcgtttc aataaatata tatatcgtaa acgatttgta	180
tataaaacgc aggcccaaaa ggccttttcg gggcatgata aaaagaagac acccgtcagg	240
ttcgtagaca acctggcggg tgctgtatag gttaggagcg aaagagggtt actcttattt	300

gttaattgaa	aaaatgttta	tttttttatt	tcaatgccta	tgaggcggca	aaatctccaa	360
attcaagtac	acgtggactt	ggcttgctga	agggttcggc	ttcccatcag	cttcgtattt	420
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acccgaatat	accggtaaat	ccaacggggg	tttcaagcaa	ttggccatta	atgacatcta	540
gtagtaatag	gagatccctt	ttggaacttc	tgtttcggtg	ctcatcagtt	gaagaaaaac	600
tgatgtatct	cgatctgata	aggctgaaag	aattgttggt	tagtcgggtg	tctccttgtc	660
gaaaagataa	atctccatt					679

(2) INFORMATION FOR SEQ ID NO:1025

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4437 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1025

tatcttcata	tacgatcagc	tcttccaata	atagctgcaa	gatcatattc	cattttggcc	60
atnttcttca	aatatacttc	cggaacttag	attatgcatt	tgcattcaaa	aatgtcttta	120
ggaactgttc	ctctattgat	gttgtctttt	ggaggatttc	tccatgaatc	atttgacaa	180
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tttcagctct	tcccttattc	aattgagccg	caagagcttc	gaggagatag	ggatgtgttt	360
attatcacccg	gcgattgtgg	gaagagcttc	gtcaatccct	tatctttttc	tgtgatctga	420
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gtacggcact	ttcgcccttg	gctctaagga	tacatagatt	tcttccaata	ctccattctg	540
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gctaacgagg	tgagacgtcc	agaccctcta	gcttactgat	ttgggttatcg	gagagagaaa	2100
gttttgtagc	gaggtgagac	tatccaggcc	ctctagttta	ctgatctggt	tacttctaga	2160

cgaagctttg	ttaacgaagt	gagacgttcc	agaccctcta	gtttaggatt	tggttacccg	2220
atagttcaag	cgttgctaag	gacgtgagac	gttcagaccc	tccagcttac	ggatttggtt	2280
acccgatagt	tcaagcgttg	ctaggacgtg	agacgttcca	gaccctccag	cttacggatt	2340
tggttatcca	aagataaagc	tccgctaagc	aggtgagacg	ttccagaccc	tctagcttac	2400
tatttggtta	tcggagagag	aaagttttgt	tagcgagggtg	agactatcca	gccctctagt	2460
ttacggatth	ggttacttct	tagacgaagt	tttggttaaca	agtaagacgt	tctagaccct	2520
ctagcttact	gatttggtta	tacgatagtc	aagctttttt	agagcaggaa	aatcaataag	2580
ccaagtcagt	ctttctactg	acatttctgc	aagcaaagct	caacgactgc	accggaggaa	2640
tcttgctgaa	atatctatth	accgaccagc	ttatcccttc	ttgtgaggag	agatcggaat	2700
ttcaatgtta	taggccttct	ctaagtctaa	aatggcttgg	ggttcttggg	tgatcatatc	2760
tcagatgctc	ataaaaaagt	aactccctca	aagtataata	atccgaacag	aaaggaaaaa	2820
gccaatagcg	gtacttagct	ctttataact	gccatacat	tttactcaat	gatgtgagta	2880
tttttactca	gggaaataca	ataaagacat	cggctggcta	tcaagcattt	acaaatcaag	2940
tcttgcaagc	aaacagaagc	aatgtgatta	tcccgtaaag	gatgagattt	tctccaaaaa	3000
atthtcgatt	atcggtatgt	ggcttttttg	ctacatttca	agccgaggaa	agctccacac	3060
aaaagataaa	cggctatata	tcagagcatt	ccaccggcag	aacagcataa	cgaaacgact	3120
caatgatcag	caacattact	ccgacttctc	tcatacgacc	aacgcacccg	ggcagatcgc	3180
tccgggcatt	catctacatg	ctaccgcctt	atccaaagga	agacggacag	ggcgatgaag	3240
cataggcgat	aaaacttttc	gcaagacctg	caaacagata	aggacgcact	cgatttcgtg	3300
tggaatcggg	tgctgtcctc	ttttatataa	gccgggaatg	ggccttttga	gccgtccgaa	3360
ctatatataa	atcagatacg	actgtataca	aatggaaaac	gatttgtata	taaaacgaaa	3420
acgatctgta	ataaatcgth	tttgatctat	atacagatcg	ctttgcaaag	agtttgaaac	3480
atggtccgaa	ctgaaaaagt	tcgcttttcc	tgctttttta	cttcaggact	ccttcctttc	3540
aggtgcttat	ttggaatgat	tccaaactcg	tcttcgtgth	gaaaactttt	tcggtctgta	3600
tttttaggct	ttttgcccaa	aatcatctct	atcgtaccgt	cgcccataga	tgcttcatgg	3660
cgcgctcttc	ctgacgatac	gaacgaagag	gatagcgaga	tagacgggca	ttccgacaca	3720
gaagtaatcc	aagcatttga	aaggagggtg	ataccgataa	gctccggaat	gacttgagga	3780
aatagttggg	atggcgatcc	gtcttgaaca	ggaagctcgt	ttgatacgat	gatcgggtac	3840
gatatagagc	ttcagcgctc	acacatccct	cgcttataga	tgacgaagaa	gagcatggca	3900
taggcaaaaa	ccaagatcgc	acgccccagc	cggtatgtga	attgaactcg	actcccgtgg	3960
catacgcttg	tacagggaag	tgaagtaata	ggctatgtga	gccagggtga	ggaaaagcaa	4020
ttgagcttgc	catactgtac	tgccgcttgc	cgtagcagtc	gcttctcttg	aagatggaat	4080
aggagaggga	gagcacttgc	caaagctaaa	taaaagatga	atgtggtgat	gatggtttgc	4140
atacttttta	agggttggtt	ttatttccga	tctcgttcat	attgagctcg	gcccacgggc	4200
ttccgtgtcg	tcaacgcgth	gggatggttt	cggctcccatc	tggtggctttt	gcctgccatc	4260
cacattcctg	acacagcagg	atgccgttta	cgccttgtac	gatagtaacc	cttcgtcatc	4320
gataatgttc	gttacactca	taatttatgt	ttttctggtt	atgattccgg	tgtgatccga	4380
ttgcggatat	nggggtttgg	tacatttgaa	accaacagat	agcgagcatc	ctgaatc	4437

(2) INFORMATION FOR SEQ ID NO:1026

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 644 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...644

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1026

cgcgttctac	gccgaaatct	gcgatttccg	cacggcgaag	gacatcgggg	cgaccgtccg	60
gaaaagcatg	aaattctgca	tcacattccg	ccgacgccga	gcaggaagcc	tttatccaaa	120
agctgatgga	atttgcccg	accggtatgc	cgagctattg	ggtcgggaga	aactctccga	180
tcgggaagaa	aaggcgagat	gcttatcgcc	accgactacg	cccgaagat	gtcgctcgac	240
atgcgatgat	ctctccttct	tacgaagacc	atatcgacaa	caaggcttcg	cactcgcccc	300

actgatccac	gattattacc	ggaaatatga	acgggagaaa	ggtcccagtt	tgttttctcg	360
gatttaggca	cgtacaagcc	ggacgagtgg	aagtttacag	cgaaatcaaa	cgaaaactga	420
ccgatgatta	tggcatccct	ggtcggaaat	ccgtttcatt	caggaatgca	aaacggaggg	480
tgccaagaaa	cgatgatcgc	gggcatgaat	gccggcagca	tacgtgtcct	gttcgggtca	540
ccgaaatgct	cggaacgggc	gtcaatgccc	aacagaaggc	tgtggcgggc	atcatcttga	600
tacgccctgg	gtgcccagtg	ctctgagcac	ggatgcagca	tcga		644

(2) INFORMATION FOR SEQ ID NO:1027

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1027

tattatgcaa	cnaacaaaca	caacttcagc	agaaaagagc	agtacaataa	cgtcaganca	60
tcactccaac	tttttccgaa	aagaangcct	atgacatgat	tatcangctn	ngacggcttc	120
acncggtacg	aactancctt	tcccaaggt	ctgcatacgc	tttctttcga	tgccgtctac	180
gatcgcttcc	gtttcgatat	ttgtatcatg	acaaggacag	cagtgagagc	ctgatcaaca	240
accaagtcag	accgagcaac	ccacattctt	tccgggtcag	ctacgcaata	aaaagatcag	300
atccgataca	cggcacaggc	tcncgngna	tttactactg	ctttgcgcac	aaactgac	358

(2) INFORMATION FOR SEQ ID NO:1028

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1004 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1004

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1028

aaatcgctac	acctatcaat	gtaatcggca	agattaccaa	gcaagaaata	tcggtgatgg	60
acactttgct	ttgtgctttg	gtcagtgtat	ggggccgatg	tatctgtatc	ccccattgtg	120
gaggctcttg	atggtgaagg	agagtactct	ctttgcatta	taaatttccc	gtgtccaatg	180
aagggcatac	gggagcttca	cttttagctg	cttccccgag	agtgggtgctc	ccggcacaga	240
attggtacag	tgaacattaa	cttcaagtac	aaaggcggtg	gaaccggttt	gactatatcg	300
ggctagggcg	tatagctctt	atccagagcg	gtaatacttg	caccttcagt	acaacagcaa	360

tggaagcgt	cttgcccttg	aagtgtacaa	tccttaggcg	ttaaaggtatt	tacctctcag	420
ctgcccgcag	gatacggctc	tatacgctgc	cggtgcgtct	gcagcgtggt	gtgcataatct	480
tccgcatcac	gaaggaggta	agcctgcgtt	tggtcagaag	tatctgatta	agtaataatg	540
gagtacggcc	aaagcctgca	cgatttggag	gctaaggacg	tttttcccag	ataaaaagagg	600
ctgcctcgga	gttcgacata	gacttcgggg	cagtctctcg	ttataattttc	acgtcactga	660
atctgattga	ggaaggattc	ggcatctttc	tattattagat	atagtgccga	cattttgtcat	720
ccgaaagcag	acagtatact	ttatcatcat	ggcaaagata	ttggtggcat	ttaacaccgt	780
gagcaggggt	tcgaccggct	taccgctcgt	cacgaagtgg	ttttcccgcc	caagggcgcg	840
attttactca	agaagaaata	gcagagcgta	tcgtggattg	cgtgttctct	gttccgtatt	900
cgacattccg	atcggtaggg	atttgattga	caaggcccga	tcgcttaagt	tgatcgctaa	960
ctatgctgtc	gggtacaata	tatcgatgtg	acttatgcag	catt		1004

(2) INFORMATION FOR SEQ ID NO:1029

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 809 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1029

tggtcacgct	tcgtgtttgc	gactttttgc	attaagttac	taccgacaag	ttagcatcca	60
gtctaagagc	aggacgactc	tgagcatttg	caaaaccggt	ggtgcgagca	gcatagtagc	120
tgccaaaatc	attttcttca	tttttcgtct	tttttgagtt	ttgttctaca	atgtaacaca	180
ctctctctcg	ttcaaagtat	gcctatacat	accttcgat	gcagcaaaga	tacacaatga	240
aacgttctat	gattcaaatg	gaagatttgc	acttatcagg	tggaatctgc	aaaagcgaaa	300
aacggacaaa	atattggatg	atataaaatt	attacataca	tttcaccgca	tttcaaacga	360
aaaaaatgct	actaaggctg	aatcgctagc	tcgcaggtag	agcacatccc	ttttaaggat	420
gggggtcctg	gttcgaaccc	cggcgattca	cgaaaagaaa	ggggccatgt	caaaattcgg	480
tttttttgaa	tacgcctcaa	aaagttggat	attaaattat	ccttgtgtta	tagaaagagc	540
cggtacaata	ccggactctt	ttcgtttaat	cttgccttaa	ttctactatt	ctattattgt	600
tatctcctcc	aatgcattga	taaaactctc	ccgagagcaa	atttctcttt	acacaggagc	660
tatgaccgca	taatacaaaa	agaagtcttt	tcaagtgata	ataggacacg	gaacgagcca	720
tctgtttttt	aactcaataa	caaggcaaaa	gtaatgtgtt	agagatccta	attgtagaac	780
aaaggaccaa	ggatacagta	taaactttc				809

(2) INFORMATION FOR SEQ ID NO:1030

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 530 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1030

ctaagcggaa	tgccgacctt	cggtatcgag	ctgggcgaca	tcgaacatcc	gaatacacgt	60
tggaggagat	tttccggtat	ttggccgatg	cggacaggcc	ctgtatcggt	gccatcgatg	120
agttccaaca	gattgcgaag	tatccgggaa	gaatatcgag	gctcttctgc	gcactcatat	180
ccaaaagctc	cgcaacgcaa	tttcatTTTT	gccggcagcg	aacggcacat	gatgcaggag	240
atgttgcttc	ggctgcacgc	ccgtttttacc	acagtgccga	tatgctggag	cttaggccat	300
cgaggcggat	gtttatatcc	cctttatcgt	agggcatTTT	gagaacgccg	atcgagcat	360
ctcgcccgat	gatgcacacg	ggttttaccg	cTTTcaaagg	gcatactttc	tatatacaga	420
agacctttaa	cgaggctttt	gagacacgcc	cgagccgaag	tatgtaccgg	ggagatatTC	480
gagtcggcca	cgataatatg	atagcatcga	acgataccat	attccgcgag		530

(2) INFORMATION FOR SEQ ID NO:1031

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3023 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...3023

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1031

aatacgcaac	catggacatt	caggattaaa	gagacgggaa	tcgacattcg	cccgatttta	60
caaaaacgct	gcccgtagtc	gatcctgata	atcgagagta	tttgtttcac	ttggatgcgc	120
tacggagaat	ctttgtgtag	cggcagccat	aaaggatacg	agacgatggt	ctctatcgca	180
gaaaacggca	cgatcccatc	gaacttacca	agcaggattc	cgatactcca	tctcctctgt	240
ttcctatata	tccgtaaggc	agacgaacag	aagtgtctat	gatggaaata	ctatcctgtg	300
aacgacattg	tcgctttggg	agaaaagagc	gatatggaac	ctttgtcgga	gcccatttct	360
tcaagaatgg	cacacgggag	ttcgacgcta	ttcggaaatg	gtttgtgagg	gcaacagcat	420
acaaatgcga	gacaaaaagt	taaagaagaa	ttgcagcaat	ggatgcgcta	taacaagaag	480
catcaagatg	aacgagagac	ggactcagct	atgccgtatt	cggtgcaccc	aatctgtctg	540
cttcattgca	aaggccatta	tcacccgact	cattaatgag	aagtcacaaa	tagaaatgat	600
agaagaaaga	tagcctcctc	ttctcatttt	gttttgttac	cacttcgaac	aatacgggtg	660
tgcaatggat	aaaattgggg	agagcatgga	acatatcctg	ctcaaggcta	caggtatggg	720
tatttcgcat	gcttaatgaa	ccagcccaat	gaggtacagg	gcctttcggg	aaaaatggca	780
gaaaactcgg	catcgaagac	gaatataccta	cgttcttgat	acgattggga	tatggagtaa	840
gatgccgtat	tcgttgagaa	gaagtgtcca	atcctgcatt	atcctaattc	cttcgattga	900
aagaatcaag	aggatacaag	cctcaaagg	gtcccaccga	aaaatctctt	tggggccgga	960
cagaatgttt	gagcatggct	gcaaaaacga	agagggtgct	gcaaagacga	aacgcttgca	1020
gcaccctctg	agctttcagc	cttttatcct	ccggcttatt	tcttcagggtg	tttggcgaga	1080
aaccgagcat	ggcacggtat	agctccatgg	agttttcttc	acgatggatc	cgtggccttc	1140
gttgtaacttc	accatatagg	gtacttcgaa	tccgcggcac	gcagtgcctg	tacgatctga	1200
tcggactcgt	tgatattcac	gcgcggctgt	tggctccctg	tacgacgaac	agtggcttat	1260
tgatcttgtc	gatcggaaga	agggggacac	ttccttggcg	atagctgctt	cctccggatt	1320
gtcaggtcgt	accaaatttc	cttgaccatt	tccttaaacy	gcttccaata	tttgggaagg	1380
agtcgaagaa	ggtgtaaatg	ttcgatacac	ctacgtaatc	ccaccgcagg	catagagatc	1440
gggtgttttc	accagaccca	tcagcgtggc	taaccaccgt	ggctggcacc	gtatatggcg	1500
atcctgtcag	gatccaccca	ccttggtcga	tagcatagcg	cacaccgtcc	tccacatcgt	1560
ccatggcttg	cgaccgatct	gtttgaatcc	ggcacggagg	aattccttgc	cgtatcccct	1620

gagatgcgga	aattgacttg	caggggtggca	tatccgcggc	tggcgagagc	tgggtctcgg	1680
gattgaagcc	ccatgagtcg	cgtatgcctt	gggggctcca	tgcggattga	cgatcagggg	1740
tactttcttc	ccttcgaggg	ctgcttcggc	agagtataaa	agccatggat	agttagtccg	1800
tcgcggctct	tgatttgatg	gggcgcattc	cgcccatatc	ttctctcttg	agctgaggca	1860
tcgggtcatag	aggagggtaa	acttcttggt	gcgcgtatcg	aactggtagt	agtgccgtat	1920
agcttgctgc	tttgtacggc	gataagcagg	atgggtctcat	atcatcgtaa	tcgaccacgg	1980
agaattcttt	gcccttgaat	tccttttctt	cagcttggtc	agctctttgt	aggtggcact	2040
tacgggtacg	actacggatt	ctgccttcg	taggccatga	ggtctatttc	gtagtttctc	2100
ttacgaggag	gtgcaggccg	ctgacgtcgt	agtcttcgtt	ggcgaagatc	tcgcggtgat	2160
cttggtctgc	ttcaggctgt	agagtacgat	acgagtcttg	tcgcttccag	gttggtcagt	2220
acataggctt	cgtctttggt	tttgaggcca	tagtgaacgc	gatgactccg	aaggtgtcgt	2280
cccagtgtgt	tttcttcagc	agaggaactc	gcccgtagcc	aaatccttgt	agtacaactc	2340
ggattcgatc	cctttacgag	gcggctgtat	ccacgcagtt	cgccgtcctt	gtcgaactcg	2400
taccttgaat	ggggttggcc	gcacctttat	tctcgtagag	ctgggtcagc	cgctgtttac	2460
tacattcagt	ttgtagggtt	cgaagatctg	cggattgttt	tgttcatgga	tatgatcatg	2520
tagtcttct	gctctttgag	catgttgaga	tcgaagcctt	cactccgtca	aagggggtga	2580
gatcgcggt	attgctgcgt	cgatattcga	agcaaagagg	tgatagttct	cattccctcc	2640
tttgtcatga	caaagaagag	acgttcgtcg	ttgatccatc	cgtagccttt	gatcattcgt	2700
ccttttcttc	gatggcacgc	ttgacgggtc	cggtggaat	ttcctgacat	agacatggcg	2760
tttgccggca	tcgtcctttt	ccatgtatga	gagtacttgc	cgttggggct	tagctgaaaa	2820
gcggaagcct	tgggtttggc	aagtagtctt	ctaccttgta	tttgtagttg	cccttgtcca	2880
aagctgccag	tccttaagct	cttcttcggt	cgaaggcaag	gctgtattgc	cgggcaattt	2940
gattcgaatc	gtttagcgt	aagcggcagg	ctgaagccca	tctgctctaa	ttgccttcta	3000
tcgtattgcc	ggacagggtg	ccc				3023

(2) INFORMATION FOR SEQ ID NO:1032

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1032

gcctgctaca	catgggtgcg	gagcacgccg	taatcggtat	ttcggggcggc	tcgactctgc	60
actggcactg	atcgtctgtg	cacaggcatt	cgaccggcgg	atctgccccg	taagaacatc	120
attgccgtta	cgatgccggg	gttcggactt	ccgatcgtac	ttatcggaac	gcctttgctc	180
tgatggaggc	catcgggtga	cgatcaaaga	gatagacatc	aaggaggctt	gtctccgaca	240
cttcgagcca	taggacataa	tccggagggtg	caggatacga	ccttcgagaa	tacgaagctc	300
gcgagcgaac	acaaatactg	atgaatctgg	ccaatatata	caagctccag	ttataggtac	360
gggtgatctg	tccgaactgg	ctctcggatg	ggaacgtaca	atggcgatca	tatgtccatg	420
tatgccgtca	atgcagggat	accaagacta	cggtagacat	tctcgtcgat	catatagcgc	480
atagcggctg	ctggatgagg	cagcttcggc	tggtttgctg	gacatcgctc	gtactcccac	540
agtcccgaac	tcaagcctgt	gggacaggat	ggaaatatca	gccagaagcg	gaagatctgg	600
tcggggccata	cgaattgcac	gacttcttca	tctaccattc	ctccacaatg	aatacaagcc	660
ctcgaagatc	tactacctcg	ccggtgagct	ttcaagggga	tctataccaa	ggcggagatc	720
aagaaatgga	tgatgtattc	ttccgctcgtt	tcttcgctca	gcagtacaaa	cgtaattgta	780
tgccgatggg	ccaaaagtaa	gctgcatcag	tctgtcgccc	cgcgagcat	ggctatggcc	840
agcgatgcca	gcagtgcgct	ctgggttagc	gaaatgacca	agtcgaaacg	gattgatctt	900
ttggagggtta	tccgctcgga	aaagacagag	gagtggtccaa	atactaaaga	cactgcctcc	960
gtcttttttc	ctccatggaa	tgaggagaga	gagaagagaa	tgctgcaagt	gcgtcggcct	1020
tatgaccggt	ttacagaggc	tctctcgaat	ttacaatcga	cactctcaac	aagaaaaacg	1080
actacttgta	ttcagcccaa	ctcttgatgc	gaatatcctc	agggctagtt	tgcagaatgc	1140

cgtgatgaag	gcagaagcca	aacgagcatt	tgtaacagcg	ggatattcag	gtcgaatggct	1200
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cttcgggatg	aaactgtgca	gagaagaaag	gcttgctctt	gggcgaatac	cttcgttcgt	4380
gccatcattc	aggttgatat	aaagctcctc	caatcacttc	cgagagatgc	cggatctaca	4440
gcaaattccgt	gat					4453

(2) INFORMATION FOR SEQ ID NO:1033

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1033

gaaaagtgat	atgcttcata	atcccagcct	gcttaatcca	ttttttcaag	gataattgat	60
catactgcmc	tgcaagcctt	tgaagacttt	acccgatgtg	gctctccaca	tagttcataa	120
gcttcataac	tgattgggag	agtagctcgg	tagaggtctt	ctgtgtcctg	atgcggatgc	180
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tctgagcaag	tatcttcact	tcatcgagtg	tcaaatactc	tttttgacct	ccttagcttc	360
tatcttatct	aaaaagtcac	tgatattctc	cctagccact	tatctcggtg	cgcaatcttc	420
agtagccccc	gaaaagtggg	aagtagccag	atgcagagtt	tgtggagact	tttccttttc	480
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tccgccttgt	tcaactatcc	atgttaaact	ctcgctccat	ctcattctta	ggatggcggt	780
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caagtagaat	gaggggttcgc	tctcccttc	gtcccaaatg	ctggataaccg	a	2571

(2) INFORMATION FOR SEQ ID NO:1034

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2800 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2800

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1034

ggccgggaat	ctgcgcacag	cccgttatat	gtcttggtcta	tggcattgag	tcctgacgtg	60
ctaccgtgat	tctgttttcc	gtaccctcaa	gttgcaactgc	agatcgcgga	aattctgggtt	120
agccttgaga	tcggggtaac	gctccacacg	accatcaaac	gggacaaggc	actcgatagc	180
tgatcctgtg	actgctaaac	ttagccaagt	tctcttccgt	cagattgtcg	gcattgatat	240
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gcatagcctt	tgacggtctc	tacgagattc	gggatcaagt	ccaacgacgt	tgatattggt	360
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cctgtctccg	ggttgatata	ttgttctcgg	cacggatatt	gaccacatcg	gccataaaca	720
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(2) INFORMATION FOR SEQ ID NO:1035

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2548 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1035

aaagaggttt	atcgctttga	cttatatcta	tggatcggc	cgcagtagtc	tattaccatt	60
tggataaagc	cggagtagac	cgcgatatca	aggttaaaat	tggtcggatg	accaagctgc	120
tgccattcgt	gatgttatcg	gtgccggtag	aaagtagagg	gagatttacg	ttctgagggtg	180
cagttgaata	tcaagctctc	atggatatcg	gctgctatcg	tggatttcgc	catcgtatcg	240
gtctgtctcg	cgtggccaga	gcacaaagaa	caatgccgcg	acacgtaagg	gcaaaagaag	300
actgttgcta	ataagaagaa	agctactaaa	taataaagat	tgaatggcaa	agaaagcagt	360
cgcaaaaaag	aaagttgtaa	gggtggaagc	aggggacagg	ctcatattca	ttcttccttt	420
aacaacatta	ttatttcctt	acgaacagcg	aaggtcaggt	tatcagctgg	tcttcagccg	480
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tgcatatgcg	tcaactattg	aagtcaaagc	tttcggtctt	gacctgtctg	ttcgtgccct	2280
caattgtctg	aatgcagccg	gagagatacg	ttgggcgatt	tagtgagttc	gtcacggagc	2340
gatctgatga	agttcgcaac	ttcggaaaga	agtcctttgac	tgagcttgac	gaactgctgg	2400
cacgctgaat	ttgtcgtttg	ggatggatat	cagtaagtat	aaattagata	agactaagaa	2460
cgatgagaca	taataagaaa	ttcaatcact	tgggcccgtag	gctgctcacc	gtaaagcgat	2520
gctgtccaat	atggctgctt	cgttgatc				2548

(2) INFORMATION FOR SEQ ID NO:1036

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2737 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2737
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1036

tgcgtctttt	attggtttgc	caaatatcgg	taaaggtgtc	ttccacagt	caatcaaaga	60
aaagaccgtg	tagagcagta	cgataagacc	gacaccgaga	agataaccgcc	ttgcacttgt	120
gccagatagt	tttccacata	gcctaatect	gttccaactc	ctgctgatga	ccaggggagat	180
attctttgag	ccaatctgta	ccacctgctg	aataaccgaaa	cccttgga	taccgatcag	240
gacggaagca	tcggtacgat	ggagaggatc	gtacggtaag	tgagagcaga	tgccgtgtag	300
ccagatcatt	ttggataaag	tagcggatcg	tgaggaaaac	agattgaaag	aattgatcat	360
caaccgactt	ggtaccgaaa	cctcttcgtc	cgtatgcgcc	acatatctcg	ggtgacaaaa	420
agaatcattc	ggtttatccg	gtggaccacc	gcctgaaaaa	gcccttatcg	ttctttttct	480
ctttctcgtc	atgctctctt	tcatacaa	caatgagtta	aataccgttg	gtaaatcaag	540
tccggcatat	ctcaccctaa	ggagattgcc	gaagaaagag	gaaaaaagag	cagatctgta	600
agccgggttc	tgtactcacg	gccacacgta	gccagaggtc	tgtcatttat	cttgcccggtg	660
cgtcaccgca	tggctccagc	gatctacccc	cggcatcggg	cgagccaccc	tacatgcgcc	720
ggtatacat	atcttcaacc	catcagacgt	acggcatgca	gcgtcaccgc	tgcacccggt	780
aggccttacc	ccaccttctc	acccttacc	tccacgtagt	ccgtaccgaa	gcaagacaac	840
tcatggaaaa	tggcggtc	tctctttctac	gctcctttac	cccacgagta	acttctctgt	900
aggaaggatg	gtgctctg	ttgcccggac	gtcctcccac	tctcgaaaga	gtgagcgaca	960
gaccgatctg	ctgctaact	ttctttcgtc	ttctatatct	tatctatgtg	ccacctctac	1020
gaccttggtg	gatcaagatg	ttcattgcga	tagtccactt	gctctaccac	tcgggcagca	1080
attcgcggaa	agcaattccc	atcatcgaat	catcccgaac	agcaacggta	ttccttcgtc	1140
cccgttttgg	catataccct	gcaccagcgg	aatctgccga	gcaagggaat	attcaactcc	1200
tcggctaagt	tcttaccgcc	atcaccccga	agatgtagta	tttgttctgt	ggcagttcgg	1260
ccggtgtgaa	ccacacatgt	tttccaccaa	accgagtacc	ggcacattga	tcttctctcc	1320
gacaacatac	tgattccttt	cogagcatca	gccaaaggcta	cgctcctgcg	tgcgctacta	1380
caacggctcc	ggtaatagcc	agcgtctgta	caagtgtcag	gggatgtcgc	tcggtcccgg	1440
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agggcattgc	ctgccatact	ccgcgcgaga	gaacagcatt	gtccggatcc	acgaagaatc	1560
cgatagaggg	attttcacgc	ccatcacctc	ttcgggaacg	atcaattcgc	gtccgtcact	1620
tcttcaagta	cgggacgtga	ctcttcgcag	tggaacatct	taggcaagat	gggccgaata	1680
tgctggcgtc	caaaagtcct	acccgatagc	cggattggcc	agagagacgg	ccagattagc	1740
cgtaacggta	ctcttcccga	cacccttttg	cctgagaaaa	cagcaatgat	attcttcacc	1800
ccgggcagaa	gttggccgga	ggagcaggta	ttgcctgttt	gctcttgaca	gagatattgc	1860
cttgatattg	acgtcttcgc	tgatatatgt	caggatggct	gattcagctg	cttgaccact	1920
gatttgatga	atggatcgtt	cgtttgtcgc	aatatgagtg	aaacgatacc	ttattgccat	1980
cgattctgat	atcgtcctct	accattccgc	cgaaaccaa	tcttttccctg	tcccgggata	2040
gcgaacttta	ccaagggctc	gagaataaga	ttgggatata	atgttacgta	tgccatgttc	2100
tgagtagtta	tttattagga	aggaactgcc	tgacttcttc	tgagagcgatt	gtaactcgg	2160
agctgtcagg	ttcgatttca	atatcgggtt	ctcgatactc	gcagtaggtt	ctcccaagcc	2220
aaagctgatg	tacttgatcg	tcagacctcg	ttccgcactc	gttggttcgta	atatgttcgg	2280
atgccgagga	tttcattctc	taccatcctt	tgccgtacag	atcatccgtt	atctcgtgta	2340
cgggcaggcc	gtgagttcga	ccaacgcctt	cgtataggta	tagaggaaa	ggctatccgt	2400
ttcagatgga	tacgtccccc	cctttcgagt	actttgtcat	agagcgagag	aaccgcgttc	2460
cggtcagtcg	cttgccact	ttcttcatct	gcggtacggg	aaagtgatcc	atatttcggc	2520
tacctctcct	tcggcaaaga	accgatccaa	agctctatat	ccgtccgaag	gaaagctacg	2580
ttggacatcc	cttcttgaga	gactcttttg	caccggccca	catgcgagct	cctttgatgt	2640
cgatgcgata	aaatttttct	ccggaaaccg	ccttgcccag	acctaccgta	tattccctct	2700
cccgcacccc	agttccaaga	ctatgggatg	atcgtttg			2737

(2) INFORMATION FOR SEQ ID NO:1037

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1228 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1228

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1037

atgtaagctc	ttcccgattg	aattcttgtc	cacttccgga	tcggtttgat	catctctttc	60
aagagtccgt	tttcattata	gactagtttg	tcgtgcgcga	tcgccccata	cattggccat	120
aatgtcgaag	aatctatata	cgctttgtca	gtttcatata	ggcatcgtag	gaaaaatcga	180
tacggatata	ctctataact	cctgacttcc	atcttttaggc	gagtatctgc	tgaaatgagt	240
gatataccct	tgatcatcgcg	gacaaattcc	cattttctga	caggatatctg	aacgttccat	300
cgtattcctc	ctcacgaatc	atatatccgc	cttcattgaa	aaaaatcgtc	tttcgtgttc	360
gatctctccc	gaagactcat	ccaccgaata	gacctttgca	gacggttgtc	gactccgtat	420
tcgtaattag	agtaggagga	gagctttttt	cttttacaat	cctgtgtttg	aattgctgcg	480
gatcggcatg	aagtaatttg	gagccattgt	ctgagcatta	gcgctccaaa	tccatgcact	540
aagaaaagcca	cggaggccaa	aaaaagtttt	ttcataatga	tttttctctt	ggttattagc	600
gacggcaaaag	gtatcggccg	ccatcagaca	ggccaatcct	accttagggg	attcttttca	660
cttattttgga	tggaattagg	tatttcgacg	atatttcctaa	tagtttgctg	ttacctcttg	720
aggatattcc	ttatagtgtc	tcctatatgg	agacctttgc	acaacaagca	ggcattttat	780
ccatcatttt	attgtgtacc	ggccgattgt	tttgtgtgtt	tatggatatga	tcatgacaca	840
aaacgatggg	acgacaagga	aaatcatccg	acgagaagag	gttcattcag	ggacgtcatg	900
ccagcgaatc	gatacgggaa	agcacggaat	gatttttgac	ccaagtcgat	acgcttatat	960
gagaggatac	tatgggtctc	atgagaggat	actatggtct	cacatgagag	gatactatgg	1020
tctcctatgg	aggatctatg	gtctcctatg	agaggatact	atgggtctcct	atgagaggta	1080
ctatgggtctc	atacgagagg	atactatggg	ctcatatgag	aggatacatg	gtctcgcatg	1140
agaggatact	atgggtctcct	atgagaggat	actatgtctc	gcgatgagagg	gtactatggc	1200
tattgatgga	agatgctatc	tgctcctg				1228

(2) INFORMATION FOR SEQ ID NO:1038

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1630 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1038

ggcatggata	tgctgaagat	tgacggcttc	acgtacaccc	tgagccgtaa	acggacataa	60
tcagcccctg	catctataat	tcgagctgcc	tgatcgacga	tgccgtgtgtg	tccatggtgg	120

acacattggc	catagattgt	atgcgaaggg	aaaatctccg	cgcagaggtg	tatcacctat	180
ttgagctacg	gatgtctgcg	tctttttatat	ccgaacagat	cgagcatagt	cttgctatat	240
tcttttgattg	ccgattcgag	cggaacgcac	tcacactact	tcgaaaagat	aataagaaaa	300
agaaaggcag	actacagccg	atagcggctc	ataaataagc	cacgctatag	actgcccgatc	360
ttttttgtgc	cgaagaccaa	cggggcagga	caggcttttaa	ttcgttttga	agttgtactt	420
cacctctgcc	agctcgcgat	tgctttaacg	actttttctt	tgagcgactc	cttataggcc	480
tccagtcgag	atagagagct	tcgtcgcggg	tagccatcat	ctggacggcc	aaaagtgtc	540
attctgggca	gcattgatcc	cacagtagca	acggggatcc	cggaggcatt	gaacgatggc	600
taacagagca	tccattccgt	caagagtggc	attgatggta	cacctattac	cggaatagac	660
gtcatggaag	caattacgcc	acacaatgaa	gctgccatac	cggcagcagc	gataattacc	720
ttgataccgc	gagcttggcc	tcgtgtgcaa	aagtctctac	ttcagccgga	gtcgattgag	780
ccgaagcgcc	aacatctcga	atggaatctg	catttctatc	agcatttttg	cggtttctcc	840
ataatgggca	gatcggaagt	actacccatg	atgatgctta	ccaaggctgc	atttattgag	900
ctatcagttt	ttcgtattcg	gcagcactca	gaggttgctg	aagtcggcag	catttgccagc	960
cttaaccttg	ataatccaac	ggcaccgtag	ggatcgctgt	ttacgagttc	gggttgctct	1020
tccagatcag	gttcacttcc	aatacctcgc	cggcgatagg	catcatcagg	tcggaaacgt	1080
cttcacagct	tcgatcgatc	cgaaaacctc	atcagcctcg	agcgtttgcc	ttcggtagta	1140
acgtccacat	agacaatttc	gcccatttcg	ccttgacata	gtccgtgata	ccgatgaaga	1200
caacgtcgcc	ttcttggega	gcccattcatg	atccttagaa	tacttcagtt	ctgcaggagt	1260
tttcatttct	aatttcttgt	tgattatgtt	ttgaaaaaat	gcttttgcaa	agttagtcaa	1320
agttacattc	gtacagcgaa	ttgctattcg	ttgtttttgc	gacttttagt	tcagaaaaac	1380
tatcctgttt	tattgggttg	atgttatttg	attactacgg	ggaaacggat	caatggaata	1440
taaaatggag	tagctcccga	agcaaattccc	actgccggca	aatgtgccgg	tcgtatccac	1500
ccccttactg	cgggcatcct	catccggatc	tcgtgtataa	tgtnaaaaac	cttcctcgtc	1560
gaatacattt	cagccctgtc	atatagtcgc	gcacttggaa	attgcgtatc	gacaatgttt	1620
catgatagca						1630

(2) INFORMATION FOR SEQ ID NO:1039

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 827 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...827

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1039

aagtagctgt	ggcacaagct	cccatatctg	tcattggcga	tacttctatc	gtgccacgga	60
tgaggagatc	aaaaagtact	acaacgaacn	caaagagtct	tcgttcagaa	atatccgtct	120
accatcgccc	agtatatcag	ctctcagtag	tgccgagtgc	tcaagacatg	gcaaattgcag	180
aagtggagat	gcagaagtac	gcaccgagat	gcaacagcaa	agcgatgtgg	aagctcttgc	240
ccgcaactatt	cggacaagtt	cgtatctcct	tctttcctga	cttcggcgga	actcatcgca	300
tgaacctcgg	cgtaagcatt	accgaattta	tcaagactgc	gacccggggc	aagtcaatat	360
cccgatgttg	gagaataaacc	actattcttt	ggaaagtggg	tggctaaaaa	gtccggattc	420
gaatcgctca	atgtggcaat	cttgctctgg	actccgcaa	tctgtctaag	gccgacagcc	480
tttgcaacgc	ttgaatgagg	ggggcgactt	cgctgctgca	gctcgcacgt	tcagcgagc	540
cctacctctc	gtgagacagg	cggtgtactc	acgttcccca	accagtttca	caaatgccgg	600
atagcactat	tacagaggct	atggctcagc	agctgcactc	gacactcttt	ttagcgttcc	660
atcgaataga	gtgatcaaaa	tgaatcggat	aaattcgttt	tcctggccaa	agctttcaat	720
cccaagccgg	ctgtaataaa	tacaaaattg	cctatatcgg	agtagatgct	aatttttctg	780
atgaacatac	aataagaagt	ttatggagct	gaacgagatg	ttgaact		827

(2) INFORMATION FOR SEQ ID NO:1040

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1765 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1765

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1040

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gttgccagca acctccctca gaactgtgac tacttggtta tttacgatgt atgttcaacg      60
taaatacaaca accacacgac gaaatcaaac ggctgtgcaa catagagcct tctacaacgg      120
ctttgatgta gctgctgtaa gtataaagac gtattgaata gcttcccatc aaatgccacc      180
tcatacatca acgaaataaa ctgaaaaaatt tcattcgctc agtttacaac caaagcaatg      240
cgaagggact ttagatggca aactgggata cgtgctactg atcggaacac cattagcaaa      300
tatttggctg acactgataa tacaaaagtc ccaacctctt ttatcataat gtctccttaa      360
ttccaagtca tccaactttt ggttccatat gccctccgac tattttttta gttgtgtttc      420
gcccttgat actgtcggcg attgtttatc ggctgattta gcgtcaccaa tgctcatgaa      480
ttgcacaatc gattgaaaag actatcaaca aagaaatctc atataatcct attgcacaca      540
aaatattctt tacgcagaag ggaaaggctg cgatgctcca atcttacggt attcttaaaa      600
gaaatcgctt ctggttacac agtcaactct atcttaaatc taatcagggt tctgcaatag      660
actcgatatt tgactgcttg aataatgttc ccatcatttt tattttaaca ctcattggaat      720
gccgactggt tggggatagg gcagggactc gacgtcaata ctctaacagc ccgattgaac      780
aataatcttc gcagggatta tgtacgagtc tatcatgtag ttccggctgta gcaattcaac      840
tattagatcg cttggagaag tcctgaccac atacgcacct aaaagggatt ctccgctttc      900
ttagggaggaa gcagagccac ccaatatgcc gttattttaga aggccctgtt cctccgtcag      960
aattttatga atatttacct attctttata tcacaatctc tcgactgttg ttggcgaaat      1020
gttgctatct ccattatcaa tactaattct gttgatacgt attcgaaatt caacttcatt      1080
tgcttggcga ccctgcacta aacattatgg ctcatggcat ggaggttgta attgtattac      1140
actaccaaac aacaccatta taagcagtcg gataacataa aaaatgggtg ctgcctaaaa      1200
ataccggaaa aaggagtttt gcatttacta ataattggctc catacaagtc atgtccggag      1260
gaactctgga aatagcaatc aggcataaat accggagag accggtgcta accccacctt      1320
tataccgttt acggcgatgg tcttgcgatt aacaagcagg tagagataga catatagacc      1380
gacttaactt gttttctacg cattcggtca tgcccaaatt tattttgaca gtgtgaaatt      1440
caacagtgcc ccgctgtata caacgaactg attgtggaga taagcaattg cgaatttacc      1500
aatcgaagtg acattattta aagaattgtg acctaaagct tgaaaacagt atgttttagca      1560
gttcggggta agcgatttca agcctatggc tacaagctcc atcaccggat tatctacaaa      1620
gcaaagatta ccgacaatac tttttttgcg acaggaaact tcgcctccat atcacaaaca      1680
cgccaggctt aacagcaacc tccaatgctg ccattcagtt gacaatattc ctgagtatta      1740
ccatttccgg aataaaatag tcaag

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(2) INFORMATION FOR SEQ ID NO:1041

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1041

gttcacttca	ttttttttga	cacagtccta	tattttctga	aaaagcttca	tttgatcctc	60
aaggctttgc	ccggagtcaa	aattttactc	ttgccaatcc	attggtagca	cagagtttct	120
gaacagaagt	gccgtgcctt	ttggctatgt	ttccaaagta	tcgccttttt	tgattctata	180
ggtcatagga	gaagaacttg	tctgcctttc	ttcccttttt	ttgcatagcg	agaagaagtc	240
ttagagcttt	tgcatagcga	gaattgctcc	ctcgtttgaa	tgtgtaaatg	tctcgagcgg	300
cactccgtta	tcgaagtcta	taatggtagt	cggattgatg	ggatacccat	gaagcgggtc	360
tcgaagtga	gatgaggacc	ggtgcttcga	ccgtgctgcc	tcctaataccg	atcggttgtc	420
ctgctcgaac	gatctgattc	tgtctaccaa	ttggcgactc	atgtgtccgt	acacagtcct	480
cagtccgttc	gatggcgcaa	gactatgtag	tagccatagc	cacgcgcttc	atagctgcga	540
cacgaacttt	cccgtaaaag	gctgctcgta	tcgtatcgcc	acgattcatg	aaagatcaat	600
accatagtg	atccgtccga	aacgccgacg	gtagccaatt	gagaggtgac	ctgcttatct	660
tcgacgggca	tcacgaacga	agagcatcaa	tgtcatagga	gttcggaatt	tcgacatcgg	720
ttcctgcacc	cacgaagggt	ttacatactc	gctccaagaa	tcttcaccat	ataaatctat	780
ggcaggtaat	tgagtgcctc	catcgccagc	cgattttcat	attcggtctt	tctacctctt	840
tttcggaaga	aatcttggtg	cggaactcca	gccgatctgc	aacatggttg	taatgtaccg	900
tacagagtcc	gagggctttg	tacgttcggt	cttgctttgc	tgttcacttg	gctattgcgc	960
acatttctga	cgggggtcac	gccttcgtag	cagaaatgaa	gcacagcgaa	cagcaaagca	1020
gaaggatcgt	tttttcgaca	tatttctggt	cctgttttaa	aataagatta	agcagtcgct	1080
ctacgttgaa	aggtcgtgga	aaacaacgct	cccaggtctg	cccttgaaaa	attcgctcca	1140
aagttgtaat	aaaaaatccg	aataaccatg	catttgtaag	ttattttcgt	tctttgcaca	1200
cattttgcct	tcgagtgcag	ggggtgtctg	ccttgtagat	caattctttt	ttttgcccac	1260
tatgtaatgt	ctcatggcaa	aaaatgtact	tcaaagactt	ctgatcaaa	gaggatttta	1320
tgattgggaa	agtgtaaacc	gatctgagcc	actcggtagg	actatcctcc	acgtttatct	1380
ttaaactttgt	tcggaatatag	cctctgaaaa	aacgaatgga	tttgtaagta	tggccgataa	1440
agctcttgta	gtggagatga	gagatgtgac	ctctgtcagg	aggaaaacgt	catttttcaa	1500
aatttgaatc	tgaccctttc	gccggagact	tcgtctatct	gataggctca	gtgggatcgg	1560
ggaagagcct	ttgctgaagg	ctttgtatgc	tgagggtgct	atctctgccg	gttatgccgc	1620
gtgatagatt	atgatctggc	aaagttgaaa	cggaagcagt	tgcccttctg	cgcaggaatt	1680
tgggcattgt	gtttcaggat	ttccagttgc	tgaaacgact	actggtgcgg	agaatttgga	1740
tttcgttttg	cgagtacacg	actgaaaaac	cgagccgatc	gcgagcagcg	tatcgaggag	1800
gttttgaccc	gtggggaatg	tctcggaagg	cttataagag	accgcacgaa	ctgtccggag	1860
ggagcaacaa	cgtgtgggta	tagccagagc	tttgctggcg	aagcctgcgt	tatcctggcc	1920
gacgaaccca	caggcaacct	cgattcgggtg	accggattgc	gatcgcttct	ctgctctacg	1980
aaatcagtaa	gcagggcact	gcagtacttt	gagcacgcac	aacagcagcc	tgctgtcgca	2040
tctgccggca	cggacattgc	cgttcgttag	aatggcgatg	cctcctcttt	ggtcgagctt	2100
gagtgcgaatg	ctgtttcaag	aaaaaatcacg	gaatatgatt	agcacgataa	gatcagaatt	2160
gaaagtctct	aaatttgcg	gtacgtctgt	aggagatgct	gaagctatcc	gcaagtgttg	2220
cccgactgat	tactttcggg	aaaaggaaga	aaaatatagt	cctttcgggt	atggccggaa	2280
cgaccaattc	gcttgctgaa	atacctcaca	ccttgctcaa	cgcaatgtgg	cacaggccaa	2340
agaggtggtg	cagtgttgcg	agagaaatat	catcgcgaaa	taaatgctct	atacaaacgt	2400
cggatacctt	gagcgcagcc	aagaaggccg	tcgactccct	cctcgactct	tgggtcatat	2460
gtgcgacgtg	gagggcttca	cactcttcga	ggaaaagcgg	tgttgatcct	cggcgagctg	2520
atgagcacga	ccatgatgca	gatctattgc	aggagatggg	tgcaagtggta	gccatgctgc	2580
cggcttttga	gtatatggta	ccgacaagaa	tcgagagccg	gacaaagact	atatccggaa	2640
gcatctttgc	cgatgataga	ggctcatccg	gatgaggata	tgctattcct	gacgggggtt	2700
acatttgctg	gaatgccttc	ggagagatcg	acaatctcca	acgtgcggca	gcgactacac	2760
ggcctctctg	atcggagcag	cactgaatgc	tgagaaatcc	agatatggac	ggatatcgac	2820
ggcatgcaca	acaatgatcc	tctgtcgtag	acgttacggc	accggttcgc	cgtctccatt	2880
ttgaagaagc	tcggaactgg	cacacttcgg	agccaaaatc	ctccatccga	cctgtatcaa	2940
ccggccaagg	agaagaatat	tccggtacgt	ttactcaata	cgatggatcc	gatgcacccg	3000
ggacgctgat	ttcactggat	accgaaaagg	attgtatcag	gccgttgctg	ccaaggatgg	3060
cattacgggt	atcaaggtaa	agagcagaac	aaactccttt	catggcactt	tatgcgcaag	3120
ctcttcgaga	tattcgggtc	taccaggagc	ctgtggatat	ggtcgctacg	agcgaagtgg	3180
gtgttccctg	accattgaca	atgacaagaa	tctgcccgat	attgttcgtg	cctttccgat	3240
attggagatg	tgacggctga	taaggatatg	gtcatcatct	gtacgtaggc	gatatggagt	3300
gggacaatgt	gggcttcgag	gctcgtatca	tcatgcgctg	ggt		3343

- ```
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 591 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...591

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1042
```

|            |            |            |            |            |            |     |
|------------|------------|------------|------------|------------|------------|-----|
| ccaaaaggaa | aagagaaggt | gatatgcttt | gatcatgcag | aaagagggca | cagaggtcgc | 60  |
| ctgtgttttt | ttctacttt  | tggattgcat | aatcgatagc | acaaactgca | tatggtattc | 120 |
| aactttctga | tagtttccga | tgaggtgaag | atttcgcgcg | agagatagcg | atcgactccg | 180 |
| aagctacctt | cctcgactcc | aaaatgcgat | tctggactcg | gtgggctatt | cgcacagcga | 240 |
| gctaagtctt | ttttcctctg | cgatgaggac | tggcacaagg | ggcaggagat | tacgtgatgg | 300 |
| agatggacac | ggcctcggat | gaggactcgt | atgtgatgga | gaaacacgct | tggaagagtt | 360 |
| catcgaggac | gaacaccaac | gtctcgtctt | cgattcgact | tgatgacgga | gcgttacttc | 420 |
| tttatcgaa  | tgatggatat | ataccgggca | aatcgctctc | ggagcctaag | ctccttacgt | 480 |
| cggaaggatt | cctcgcgaac | aaagctctct | ggacgatctg | atggatccga | ctgccattca | 540 |
| accaagcaag | cccggggatt | ggatctggaa | naanacttct | tcggcgacgc | g          | 591 |

(2) INFORMATION FOR SEQ ID NO:1043

- ```
(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 1306 base pairs
    (B) TYPE: nucleic acid
    (C) STRANDEDNESS: double
    (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
    (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
    (A) NAME/KEY: misc_feature
    (B) LOCATION 1...1306
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1043						
tcgatgataa	tggaaagcct	ttctcccaat	tgtataaatc	gctccacgaa	gcgggaagat	60
tgagatcaaa	cgccacgacc	cttacttcgg	ccgttcgaca	gctatagctt	cgtctaaaag	120
acggagcaaa	gcctctacag	catcgaaccc	atccaagaga	gtgcagtggg	agctttcggg	180
tgagtaggta	caaaagtgatt	cccgacttcg	agtccttcgg	caacaatgca	gccattcctc	240
ctccaccgaa	aatctatcga	caaaagcctg	agacgaaatg	aatccgcgag	tgaagccaca	300
tcgagacaat	ccgggtaggt	ctcgcgatgc	aatactacct	ccatcgctgc	tctcccccac	360
aactcaattc	atcataatat	ttcataaaaa	cggtttttacc	acatagacga	aagctccggt	420
tttatctgca	ttgcgaggaa	atgtaccacc	cgaaacattt	ggaaagggag	caaaagggag	480
gacttggcca	tttacacaca	gttccatcct	gattgaggaa	agaaagcctg	ttcttcaaac	540
atagtagcga	tcgccatccg	gctctttgta	ctctatggaa	aaaccgacaa	atcccagggg	600
ggacgcccct	ttttccaatt	catggccaaa	agaaccagcc	gtctcctcta	tatactttca	660

aggaaaatac	agccttttcg	tttttacggt	caaaataaaa	tcttctgaat	actgtcccat	720
aatcatattt	gttaagggtca	aatataatga	aagaatgttt	tgaaaaccaa	tatgaactgt	780
tgacagggagt	ttcattgagc	tcttttgctg	cagagcagat	tcttagtgtc	ttcggaag	840
tcaaacctcc	ggtatatggg	cacaccaagc	aaacagaaat	ttcccaagtt	tccattagag	900
aagtactcct	ttcctcgtca	aataggcgag	aataagaaac	gattgtcagc	tgattcttgc	960
ttcctgcatg	atgcaggacg	gattgtcagc	tgattcttgc	ttcctgcacg	atgcaggacg	1020
cgattgtcat	tgattcttgc	ttcctgcacg	atgcaggacg	cgattgtcag	ctgattctgc	1080
ttcctgcacg	atgcaggacg	cgattgtcag	ctgattcttgc	cttcctgacg	atgcaggacg	1140
cgattgtcag	ttgattcttgc	cttcctgcac	gatgcagacg	cgattgtcag	ttgattcttgc	1200
cttcctgcac	gatgcaggac	gcgatgtcag	ttgattcttgc	cttcctgcac	gatgcaggac	1260
gcgatgtcag	gctgttcttgc	cttcctgcac	gatgcaggac	gcgatt		1306

(2) INFORMATION FOR SEQ ID NO:1044

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 811 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...811

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1044

gtcgatgcaa	gccttgtgga	gacgccacat	aaacccaacg	gaaccattag	attgaagtcg	60
cagacgacag	agaagacaat	cggagcgagg	cggaaaaaag	gcagaggagg	attatcaaaa	120
acaggttgtc	cgccggcgta	aaggagcagat	gaagaagccc	gttggtgtga	caaacaaaag	180
cgttatcact	acggatcaaa	aagcattgtc	tgaccaatgt	tcaaggcatt	gttcaaaaag	240
tgatacgact	gcagcgaacc	gcagtgcac	gaaggagttt	attccgctat	tgacgggtgca	300
aacatacctc	aaggcacagc	cgtcttggcg	gacaaaggat	atgttgccggg	gaaaatcggt	360
cctacctgca	aacctatcac	cttcaagacg	gctcatgcac	aaggcacaac	gcaacagggc	420
attgaccgag	gaagagaagc	aggaaacaaa	gcaatcagtc	cgatacggag	caccatcgaa	480
cgcacctttg	cagtattcgc	cgggtgtttc	atggcgggag	atgtcgatac	cggggacttc	540
caagacccat	actcaaaaaca	ttcttgaaag	catcgccttt	aatttataag	aaccccgggg	600
ataattatgt	cctcatctct	aggataaggc	ataacccctt	tgaggagctc	gtgcaagtag	660
ctccgcaagg	ggggattttac	aactacttca	ctccttactg	ccaccctttt	cactcgctcc	720
ttttttgcca	agaaccctct	tccctccatc	tccttatttt	gcaaaggctc	ccataatgga	780
tactgttgca	tcccgcncca	ctgtcaactt	t			811

(2) INFORMATION FOR SEQ ID NO:1045

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 650 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1045

ggcgaagtgt	tgttcgagtt	cggatagggt	ctgttcgttt	gtttggaggc	tttgatgatac	60
tcgccttttt	gcagtactac	gatgcggctg	ctgacttcgt	cacgtggttg	aggtcgtggc	120
tggagataag	catggtggta	ccgtattggt	tgcattgttcg	ttgagcattt	tcttcagccg	180
tatttgtgag	gaaggacgag	agccgtgaac	ggttcgtcga	ggatcaatat	atcggggcga	240
gagagatggc	agcggctatg	cctatcttct	tttgattccc	tttggaaaaa	tcccaatgag	300
tttgttcttg	cccaaaactt	catcggcaaa	gaggggacac	atgagtcgag	aaaacgctct	360
atctcctgct	tgtcgagggt	gtggagcttg	ccatgaaatc	gaaatactcc	tccggacgca	420
ggaagccgat	gaggaagctt	tgtcgaggaa	ggctccgaca	cggcccttcc	aatcgtcact	480
acccgctacg	ggatgtcgtc	gatggagatg	ctaccgctat	ctgctttgat	cagatcgaga	540
cgaggcgga	gagggtagtc	ttgccggcac	cgttattgcc	taccaaacga	aggtttcgcc	600
gtggccttatg	gagagatggg	gaatatccag	tacggtaccc	cattgtattt		650

(2) INFORMATION FOR SEQ ID NO:1046

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 599 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...599

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1046

gatacgaaaa	aactccgaag	ccaagtagtt	caccgtttat	cagagccggg	cgtagccatc	60
ctattgctcg	gctctgcgaa	ctgcttggtt	tcagccgtag	gccttttata	aacgtcatct	120
caacgattta	gctaggcatg	aggaggagtc	ctatgcagta	gtatcatcca	atattgttgg	180
cacttaagac	aagcaggcac	ctacctcaag	ccggcttccg	agagctcatg	gtgctttgtc	240
agcaaacttc	ggccccaagt	tcacgcttgg	gcgcgatcgc	ttttgcgccc	tactagacgc	300
catggtatga	tgctgcgcaa	acggtctgtg	cgccctcgga	caacaactct	cggcataggc	360
tctacaagta	tgaagacctg	ctcaatacag	agctaagttt	gtgcctcaaa	gacctgggga	420
actccttgta	gcagacatca	ctacgtggct	taccaagatg	ggtttgccct	tctctcccta	480
ctgaccgatg	ctatagtcgc	tgtatcgtag	ggatttgctt	acatcctacc	ctagagggtta	540
aggctgtttg	aatgctctac	atcaagcctt	tgctttctac	gatcagcaca	aattgatac	599

(2) INFORMATION FOR SEQ ID NO:1047

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2033 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2033

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1047

caatcgcata	gacatataag	cctgatgatg	ttctgtccgg	aataagcaca	attaatgtgt	60
tagagatcct	aattgtagaa	ggaagagacc	aaggatacga	gtacgacctt	tcaaatacga	120
caaggagagt	cgagggtcatc	gatctgcatt	gagtcctgat	cttcccaaac	aaggggggaa	180
aatgaatttt	gaagaccgaa	attgggaaaa	tttccaaggt	cgttctcggt	ttactttaat	240
tgctctaata	tactggtaat	tagcatgttg	taatgagcac	cgtagcccta	cgctgtctcc	300
tgcacgtg	aggagtgc	cgtagcccta	cgatcgtaag	tgttcgtaac	ggcttttcaa	360
cacttcttcg	tattcctcgg	cataatcttc	aactcgtaac	aaaaggtatt	gcctgagagc	420
gtaggagaaa	aagggatggg	tgcggtgaaa	aaagatgccg	tactccgaca	agatttgttc	480
ggatgggtta	aaaggtggag	tgacgggtaa	gaagagtcgg	ttagccgggc	aatccgttgt	540
gcggcagaaa	ttttgaaggt	cagttcggga	acaatttctg	tgagattggg	gaagtgaat	600
agggaacact	tctttccaat	ttattggcgc	gcaggcgctg	taatgatcgc	gaccgttcag	660
gtaggccatc	agcttctcat	gcgtatgtag	ttaccccaga	gttcttgga	aactgacgct	720
ccgtcttcgc	aaatgcctcc	tctccaagcc	ggacaatcgt	agcagccaaa	gcaccggcga	780
acagcaatcc	tcctgtactca	tcctgttttg	ccagcccgaa	gccagtacca	tgacggcttc	840
tgcttgccga	tacaatagcg	agcgacagct	tccagattga	taaagccccg	ataataacgt	900
gcaaggctcc	ggcaactatg	tcggcagcgc	ggtaccggtg	gtcgctcgata	gtacgagctg	960
tttcccctct	accgcctggc	agtgtactct	tcgggagcat	tgccgaaatg	agcgaaaggc	1020
aatcgcttct	tcctcgctcg	cctcctacga	ggaaccggtt	cccggcatag	atttccgctc	1080
ctcaacgggt	gcaatcggga	tgatgcctac	ggcaccgttc	atcagtgcgt	tgtgatgggtg	1140
gtaccggcac	ggaagatata	cacgataaca	accgtgactc	ttcttgctcc	gtcttgtaat	1200
atggatagag	tacaggagaa	ggacaagact	gatctgcagc	atctgctatt	cttagtattt	1260
ctcgagggaat	gtctcagagc	tttgatgaaa	agctgggtct	gagcaggctg	ctgcgtgggtg	1320
attggacgta	ggattcatcg	agaccacgga	aattggaagc	atcccgaatc	agatattata	1380
ttcctccagc	atatattttt	tcagttcggc	cgctgttcct	tcttgaggcg	aaggagggaag	1440
aacgtgggtg	ctgaggggatg	tacttctaca	catcgaggcg	attcagggct	gtgataaaat	1500
ctaccgtatt	gcgttgccat	tgcggtatcg	cagagtgaat	tgtgcaggat	ggataaggat	1560
gaatttgagg	cctctatagc	cagtgcggtt	accgcccacg	gcgtactgaa	agccgcccac	1620
gcttcataaa	atctttattg	gtacgatata	agccgatgcg	aagcccggta	tcccataggc	1680
atgactgaaa	gaatagacca	tgacaagggt	tttctctcct	tgatgtcggc	cggacgaatc	1740
acttctcctg	tcgtaaacga	tacaaggact	ggtcgaggac	gaatgtcgtg	tcaggatgat	1800
cgttgagcag	acgaggatct	ctgtccgctg	cagcagctcg	ccatcgggat	tgttcgggtt	1860
acaagccagc	agaaatccat	attggaaaaa	tcagcctcgc	ctatgtcctc	atagaaggat	1920
agaagcagac	ttcgtgctcg	tacatccgac	aagcatcctc	tattcggaac	aagaagggaat	1980
ggctatgagg	cttcgggctcc	ctctgaaagc	tgtgctattt	ggtagaaggc	cgc	2033

(2) INFORMATION FOR SEQ ID NO:1048

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2148 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2148

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1048

agtcggccaa	ggatagtttc	tattgctgtc	ggtaaaaaa	tgaagattct	caaaacatac	60
tgtaataatg	gaatttactt	tactaccatt	tatacgtgtt	aggctgtttt	ccccttcgta	120
atgactcttg	atagaacagt	aatggctaga	aagggagatt	ttatttcgaa	tttcctaacc	180
gtccaaatth	ccccggcagc	aatagatagt	ttcacagcca	tgaaactaaa	gtttcgtagt	240
agtgaactaa	agttttctcg	ctgtgaaaa	aaagtttctt	aaccgtgaaa	cttctgaaag	300
aaacggaagg	aaaaatctcg	cagacttctt	tatttgagcg	ataggctccg	ggtttgccgt	360
ctttgatgta	ggcggttcag	gattttaatgt	cgtcgggttg	cagcggctac	ggtcgcagcg	420
gtacagctcc	gtgaagggat	cgcacgcagc	atcctctgca	aaaggctcgt	ttgggagggg	480
atgcctttga	ggcgaagtac	tgctcatagg	tgtattcgac	gaaagctgtg	gtaggcccgt	540
gccacggcgg	tcgaggagat	agccgtcggc	cagctccacc	ggagtgcata	accatcgcca	600
cgacgaagat	cggaaggggc	aggacgtgcc	accacatctt	tttgtcagcc	gagaggggtg	660
taggcacgag	attgcgatag	tcgcctgcgt	cttgtagatg	atgatcggag	ccaatgccat	720
agccggcgct	atggggctac	tccatcgtgg	ccattgccct	cctctcctcc	gatgaggata	780
ggttcgggaa	atcgtttttg	ggcttctggg	tatgagtctg	cgtcatttct	gtggactgtt	840
ggtctgattc	gttctgcac	ccccactcaa	gaaaacgata	gcatacaagag	ggagaaaaag	900
atthttacttc	tcattttcta	ctcgggtatta	ggaagagaat	cgaatttctc	gtctgtaaat	960
tatcggaact	aaggtaatgg	aaatcctata	ccattgtttt	tcctataaaa	acagcacttc	1020
tatcgacaag	atatgaaaga	aagaatcaat	caactcctac	aggaaatcgg	tcagtgtggg	1080
ctgccaccgt	ggaggaagcc	gaagctctgc	gaatcaagta	tctaagcaaa	agggcgaaat	1140
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tcggctttcag	tatcgccgac	gggcccggga	tagaggacga	cggcatgtat	tctcttcgat	1440
gaatttcgcc	gaagaccatc	ctgctcgtga	atgcaggaca	cattcttcat	cgagcatcgc	1500
cccgatgtca	tccttcgcag	catacgtcca	gtgtccaaag	ccgggtgatg	gaaaagacac	1560
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gcgcattggt	tctttcatca	ggtggaagca	ctgtatgtgg	acaaggtgtt	tctttcgccg	1680
atttgccgca	ggtgcttctt	tacttcgcac	aggaatgttc	ggagccgaaa	ccaaaatacg	1740
ccttcgccct	tcttatttcc	ccttaccgaa	ccgtctgccg	agatggacat	ctcctgcaat	1800
atatgtgggg	gtaaggttgc	aacttctgca	agcatacggg	atgggtggaa	atactcggat	1860
gcgcattggt	gatcccaacg	tattggacaa	ctgcggcata	gacagcaaga	atacagcggc	1920
tatgcgctcg	gtatgggtat	cgaacgtatc	accaatctta	gtaccgagtc	aaagaccttc	1980
gcttcttctc	ggagaacgac	ctcaacttct	ggaacagttc	aagagcgtgc	actaaccttc	2040
tgatcagtat	cgaatgcgaa	ggaagagcga	tacaaagccg	ttatcgattg	gtttgccgag	2100
aatatgcggt	ggccgaaacg	gagctgcggt	accgggatcc	tttccagt		2148

(2) INFORMATION FOR SEQ ID NO:1049

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 804 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...804

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1049

ggcaattatg	ctttattctt	aaaggatgtc	cgtcacgatt	acgaccaagc	gaggcatatt	60
acaagcgagc	attagcggcg	gatccgaatc	atgcgaatat	cttggaatt	atgccaattt	120
cttatataat	attcggttgc	attacgacaa	gccgagacgt	attacaagaa	agcattagag	180
gcagatccga	atcatggaat	actcttgga	attatgccaa	tttcttatgt	gatattcgtc	240
acgatacgac	caagccgagg	ggtattacaa	gaaggcatta	gaggcagatc	cgaaaacgca	300
attactcttg	gcaattatgc	cttattctta	aatgatattc	gtccgcttac	gaccaagccg	360

aggcgtatta	caagcgagca	ttagaggtag	atcgaagagt	gccaataagc	ttggcaatta	420
tgctcatttt	ctcattacgt	gcggggggat	ttcaaacgtg	ctgatagctt	gattcagcaa	480
gcattcgaga	tgccgataat	gacgaagaga	cgaaaccctt	gcaggccaag	ttatggttca	540
caggatgctg	cactattacg	aggaatgggg	agccgaggcg	gaaaaagact	ggcggctttg	600
ctgaatgtcg	gagcgaaatc	catcggtctg	aacttggccc	ggatatagag	ctggctcgga	660
aaaacaagca	tccgcatata	gagcagtcga	agcctttgcc	aaggcattga	cagagaaagc	720
acagtaggct	tttgacgcat	tgccattcgc	tgttacttcg	ttggaacaaa	atgcgggtcat	780
ccttttccat	attgggttac	tcat				804

(2) INFORMATION FOR SEQ ID NO:1050

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3118 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3118

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1050

tgatggccaa	tagaacagct	atcgatcatag	cgcaccgact	gaccacgacg	gcaatgcgga	60
tattatatgc	gtactgcatg	aggggctgat	cgtggagcag	gacgccacga	tgaactgtat	120
gccctgggag	gatactacac	gaagctagcg	atatgaacgc	agaatgagaa	aatgatactt	180
ttgtgaagaa	aagaaaaccga	tgactacaa	gactcgcac	atatagcct	tggtgaaaag	240
caggcgaaaa	ccatcgacac	ctatgcctct	cgagctgagg	aaatacaaga	ccgcagctca	300
ggcgcatect	gtcgagtga	gcctacacat	ccaccgggtat	ccgtacgggt	tcaatcgcat	360
aagctcgaaa	gagtgttttg	ctcgcaacgt	actgttcgcg	attacgaatc	gacacaagcc	420
gaaatagaac	gaatgcttcg	tgcgaaaaag	acgtgctctg	tccggggcgt	tgtacatggg	480
ttgccaaaaag	agcggcacca	ccaatagcaa	aagcaagttc	atccccgttc	cataccgccc	540
ctgcactatt	gccattatca	aggggggaaa	gactccctat	cgttatacta	cgcaatagac	600
ctgacagtgc	tttcttcacg	actaaagggt	tggtactggg	ggcagtcacg	cccctgtatc	660
catgaatgcc	gatatacaag	tcggcgcttg	agtgccatcc	ttgtcgagaa	tatgcctgtg	720
ctcggcaact	gcatggcgta	ccctcgaaaag	aaacgctctt	gatggacgag	tgagcgagga	780
agctaaagcc	gtagtccgcg	aagtggcgca	tgtacgagtc	ggaagcttgt	ccgcgtaccg	840
tcttgatcc	ttgtcttgat	caaggatgta	ctcgcagcta	cagccgagag	actttgtcgg	900
atgtatggcc	ggaattggaa	gtatttttcc	aggcgggtatc	agctttgtctc	cctatcgagc	960
gcagtatgag	aagctgatac	ttcttcacgg	atgcagtata	tgagacgta	taatgcttcg	1020
gaaggtttct	cggtattcag	gatgatccga	aggatagcgg	tatgctgctg	atgctcgata	1080
cggagtttac	tacgaattca	tcccgatgga	acatttcggc	cgccccgagc	ggaagccatc	1140
ccactcgaag	gagtggaaaa	agggcgcaat	tatgcctgat	tatcagtagc	ctcggaggac	1200
tctaccgtta	tgtactgggc	gatacgtagc	attcacatcg	gtgaaacccat	acaagatagt	1260
catcaccggt	cgcacaagca	ctatatcaac	gcattcggag	aagagctgat	ggtagacaat	1320
agcacaaggc	tttggcgcg	acatgcaagc	gatttggcgt	gcaggcagtg	gatatacggt	1380
agcgccccac	tttttttcgg	aagagggcaa	aggacggcac	gctggctgat	cgaattttgtc	1440
tctgcaccgg	ctgatccgaa	tgcttttgcc	aagcattgga	tgccgagttg	caaacgctca	1500
attccgacta	cgaagccaac	ggtatgcaga	catgactctg	ctcccactct	ccctgacgat	1560
cgctcgctcg	gtctcttcca	cgattggctt	acggagcagg	gcaagctggg	aggacagaca	1620
aagtgcctcg	tctgagcaat	acaccggaaa	taatgaggtc	tatcctgaaa	tgaacagtta	1680
atcgcatctt	cccgattatt	ggcaggggga	gatgttcgga	acaaaagaat	caatgagtaa	1740
aaagaaagat	aaaagcaaga	ctaagcccgc	aagggagacg	ctcctcgcat	caaccgtgcc	1800
ggccgttagga	acagcgcatg	accaaggagg	agatgcgcaa	tgccattttg	gacatattcc	1860
aagcaatcct	cagagcgtga	tgaactacaa	gcaggtaagc	catctgatgg	ggtagaagct	1920
gcaccacaaa	agctaattgg	gaactccctg	atggaagaca	ggctgtggat	gacatcctgc	1980
atgagataga	gcgcggacgc	tatcggtaca	tgccttgga	ttgattgtca	taggcacttt	2040
tgagcgctcg	ttcaatggcg	caattcgttt	attccccgaag	ggggcggaac	gcccattttc	2100

attgccgaag	aaattcggca	catgccatgg	acggtgacaa	agtgaaagta	caactcttgc	2160
caaacgtcgt	ggtcgcgcgc	cggaagccgc	cgtgatcgag	atcatgaaca	gaagcaggcc	2220
acttttcgtcg	gcaagatcca	aatcaataga	gacttgcttt	ccttgttacg	gaagatcgca	2280
ccttagcgaa	tgatattttc	atcccaagga	caacctcggc	aacgcaaaa	acggcgataa	2340
ggtaatatgc	cgatactcga	atggccggag	caatccaaga	atcccatcgg	agaggtacaa	2400
gcgtattggg	accggccgga	gacaacgatg	ccgagatgaa	tgccattttg	ccgaattcgg	2460
attgccttat	gtctatcccc	aagagggtga	agaggcagcg	accgtttggg	tggaagatc	2520
acagaagaag	agcttgcccg	aagagaagtt	ttcggtcgat	actcaccttc	accatcgacc	2580
cgaaggatgc	caaggactcg	atgatgccat	atcgttccgt	ccgctggagg	atgattgcta	2640
tgaggtggcg	tacatatcgc	cgatgtctcg	cactacgtaa	ccgagggcgg	gatcaagatc	2700
aggaagcata	caaccgtgcc	acaagtatct	atctcgtgga	tcgcccattc	cgatgctccc	2760
cgaacgcctc	tgcaacgacc	tttgttccct	ccgcccagcg	aagaaaaata	tgcttatagc	2820
tgcatattcc	ggatgaatga	cgagccaaag	tattggatta	tcgcatctgc	cactccgtga	2880
tcaagagcga	cgccggttcg	cttacgaaga	ggcacaagcc	gtgatcgaga	ccggcgaagg	2940
gactgcaagg	aggccattct	caaactcaac	gagctggcac	agcgacttcc	aaagaacgat	3000
tccaaaacgg	agcgattgct	ttcgaaagaa	aagaagttgc	ttcgaaatag	atgagaaagg	3060
tcgtcctctg	ggtgtaatcg	tgaaggaagc	aaggaagccg	ggggccgatc	ccttaagg	3118

(2) INFORMATION FOR SEQ ID NO:1051

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 699 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...699

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1051

gatgaaaagc	tcttaagctt	ttgatcgaga	agtaaaaact	actactgata	ttctccaata	60
tagtatcctc	tttttattcg	atgaagtcga	tttttatctg	gtatcttggt	aaaggggagg	120
aagctttttc	tatggtttcg	atccaaagga	gtcggtcgaa	tcggttttga	gcttacttca	180
gcggaagcac	ctgtgttggt	gttgctcgaa	agggggggca	gatgagtcgg	actaatgttg	240
tattttggcg	catggaaagc	cgtttttaat	ataatagtat	atggaagata	gaagaatctt	300
tttcgcctca	gtgctttgat	gggtttgatc	tttggtgcat	tctgtgtctg	aagtacatct	360
gcgtgatgct	ggcattcggg	attcctttct	tgtgctgctg	tatatccgc	tcacttgttt	420
cgctcccttt	ctggcttata	tctgacaaa	cgttatcgga	acgtgctacc	gcaagaaatg	480
cgtttcagct	tatgcatgga	tggcagtttt	ctactttgct	ctatctcttc	gcggctgtat	540
ggtttccatc	cctcactact	atttctatgc	cgagataatg	ccggcacaat	gcccgatatt	600
atggcacagc	tggagcagtc	ctccgggctt	atgaccact	cttcggtacc	gatgagtggc	660
gcgaggtgat	ggagcagatg	ctcaagtgcg	tcccatgtc			699

(2) INFORMATION FOR SEQ ID NO:1052

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 748 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...748

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1052

aaaacaatac	gatcgaaata	gcccgtcgtg	ataccctgac	gaaggagacg	tccgattgga	60
tggtatagaa	gaaacagtcg	ctaccctact	cgatgatata	aaaaaaatat	cttccaaaag	120
gctctgaact	atcgcaaaga	acatacatca	cggtggacag	ctatgaagag	ttcaaagaaa	180
agatcgaaaga	tggcgggttta	tccttgctca	ctgggatgga	acctccgaaa	cggaagaacg	240
aatcaggccg	aaacgaaagc	cactattcgc	tgtatcccgc	tgaatgggga	catgctccgg	300
gcaaatgtat	ggtgacgggc	aagccctcgc	cccaacgtgt	actttcgccc	gtgcctattg	360
atccgtcagg	ccggacatca	gtaaacaag	aaccactaaa	aaacataaat	acttatggca	420
gaagaaatcc	aaatgtacga	catgcggcat	ccgtggcttt	tattcgcaat	ttcatcccgc	480
aggaattgaa	gagaaaatga	ccgatgacga	cattgtttac	atcgtcgatc	tgatttacgt	540
ttctacgaga	gtcgcggctt	catggatatg	gccgaggaca	gcgaggaaca	gtggaggtgg	600
acgaagacga	gcttgtggag	tacgttgctc	agaatgcgca	cgggatgagg	taggccactt	660
ctctgccgac	gagatacgct	ttgtcggcaa	ggcgaactcg	aatactgcga	gagtatcaat	720
ctcttcgaag	aggacgatac	tctacttg				748

(2) INFORMATION FOR SEQ ID NO:1053

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 756 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1053

gctacatttg	ccggcaaaca	aagattctaa	acgagcaata	agcaactatt	attaaactat	60
tacatcctat	caaccaactt	tcctaacgat	ccgaacgctg	aaatatactc	tcctacttca	120
caatctactc	tcacccatcc	catccattat	ttatatggca	tcacgcgcat	tgaaaacaga	180
caaacattgc	acaaggatag	ggactaatca	ttcctctcca	ctcctgcaaa	tctataaggg	240
accgcgtcgg	tgggccacga	atcgagcggy	tgtctctttt	atatcagctc	tccaacagcc	300
ttttctgttc	tactatttat	atacaaatcg	aatacgaatc	ataacaaatg	gaaaatgatt	360
tatatataaa	tcgaaaacga	tctgtatata	aatgaaactg	attaatatat	acatcgccat	420
cgaaactcct	tcaaagcaga	ctcaactccc	aaaagtccga	ttcatgaaca	tttttacctt	480
gaaaacctct	cctttcaatc	gcttatttag	aatgattcca	aactcttctt	cgttgttgaa	540
acttttctgg	tctgtatttt	cgtgaaatat	tttcagatgg	gatgggtgatg	tatccggcat	600
tatcgaatca	aaaaaacgaa	gtactgcttc	cggactaata	tagctaacag	actgcaaatg	660
tcgaagatca	gactgtaggc	attccgtctg	aatcgggtaa	aaagctttgt	ctcagtgagt	720
aatccctac	ctttgggcgt	gcaaggcttt	tgctgc			756

(2) INFORMATION FOR SEQ ID NO:1054

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2205 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2205

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1054

gccaaactcc	atacagcact	gtaaacaac	actttacacc	attaccacct	aaaggagctg	60
tccaataatt	agacatcggc	gtctaattat	tggacagtta	tcctctgaaa	ggaaaaggcct	120
cctccgcgag	ggagaaagag	caaggaaact	tttatggccg	gttttccctct	tccgctatat	180
aggcgattcc	ctccttagaa	gttcgatgag	ctcgccgaga	ccatgacgct	ccagatcgag	240
cacgcctgac	gcacgcagta	atcgcccgct	attccggcca	cgactatacg	ttcgccgagc	300
gcaacgaatc	gggtacttcc	gtctcgaagg	cactgtaagc	atccgctcct	gcgtagtagc	360
cttctctatc	atttcgacag	ggataccctc	ggcgaacaag	cagccagagc	ctccgcaatg	420
catggttcga	tagcggtctc	cccgatagc	ggacacaatg	cgacggccac	tgtccgacct	480
gtgccacgaa	ctgcaatgat	cgcccggtat	ctgatccatc	gtcacgacga	tagactttac	540
tccttccgat	gtgcagccat	atattcagcc	aaagccttca	tggctttcgt	gcaccttcga	600
cagccaacga	accgcttacg	aaatccacct	gcggtacacg	atcaaaagta	ccatagctct	660
atgcctttct	tcttctttac	ggaggataga	gtcccaagtc	gatgtcgtgc	ttctcgtgcc	720
aaggaagacc	ctgctggcta	cctcttcgag	gaacggatcg	ggatcgaact	cctccacatt	780
gaagcaccgg	gcttgcgcca	gatacccttc	atgaacatca	tggctcctac	cgtgcaggga	840
caccgctcgt	atagcttaca	ccctgcgttc	ccgtctcttt	gtggcgacct	cgtggctgca	900
gttgttccag	atataatagg	tacgctcctt	gcacgcgga	taccgcggat	gcgacagccg	960
atactcgtct	cgcccgata	ttctcaccga	ggtcttcgag	gttgggcagc	acggctttga	1020
ggaattggag	gggacgatct	ccacgcggtt	gtacatgatc	gggtcgatgc	gcgtcatacg	1080
atattctgca	tcacgcgaag	atgagtcaga	tattcctgtc	cgaacgtatc	caaaaacgag	1140
cgcgcttgat	cgctcggaag	ttcttcacga	gtgattcagt	tcctcatgat	agaggagata	1200
ggactcgcgc	tcaccgatac	tcggaaggct	agcgtcttgt	gtatttctctg	cggttcggtc	1260
tctatccaac	ggccttctcc	cagtacttac	ccttctgagt	gatctcacgg	atgttgattt	1320
cggattgaag	ttcgtggcaa	acgccttgtg	gtggtcgcca	ccattgcagt	cccaatatcg	1380
agataatgaa	tctcatcgaa	atgatgcttg	gccgcataag	cgtatatata	ctcgtcacac	1440
ccggatcgaa	gccgcaaccc	aggatagcag	caggccggcc	ttgcgaaaac	gatcctgata	1500
agcccaactgc	caactgtatc	atacttggct	tcgtcgagag	gctcgtagtt	ggccgatatc	1560
agatagttac	cccacagcgc	agacaggcat	ccatgatcgt	cagatcctga	tagggaatgc	1620
tacgttgatc	accaattccg	gtttgaaact	ctcgaacaga	gccaccgttc	ttccacattg	1680
tcggcatcga	cctgagcggt	ttggatccgg	acgttttgat	ttcggacgca	atcttgctgc	1740
acttgcttct	cgtgcggctg	gctacatgat	ctccgtgaat	acatcggtgt	tcatagccac	1800
cttcttgccc	acacgggtacc	tacacgcgag	gccccgataa	tgaggacttt	acccattttt	1860
attgattctt	tgtatgatta	ttactcgctt	gtagcgcaaa	gataaaagaga	aaggccaaca	1920
aatcggcaaa	aagattccgc	ccccactcac	ccggcccccc	aaagcgtaga	gatgcatctc	1980
atgcaggatc	ggcctacgca	ccaaaatctc	ttacatgcca	cgccataaaa	cgtgggtcgt	2040
aaactttttt	gttttggtcg	ggaagtgaag	aattctcgcg	ccacaacgaa	aaagttctcg	2100
caccactcgt	tcagaaaaca	cgcgccacaa	tcagatcatt	tgcggttcgt	atttccacaa	2160
aactgatccg	gactaaaagg	aagttaagta	gtcatgttac	acggc		2205

(2) INFORMATION FOR SEQ ID NO:1055

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1977 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1977

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1055

ggcaaggaag	tgcgccgttt	cttgattgct	cagatgtccg	ttcggcccca	tactcgctct	60
ttcagaaact	ccggataggg	tccgcttagc	agcatctcca	gtcatagtgtg	gcttccataa	120
cgagataatc	ggctttggaa	gcatagtaga	aatgggtgtcg	gtgatgtgtc	cgacatcggt	180
gcacagcgtg	aagctgagcc	cggagccgtg	atatgggtacc	ctacgttttc	tgtggcatcg	240
tgaggatggg	aaaggccgtt	atatcgaatc	cggccagacg	aaatgtttct	tcctaaggat	300
attgcgccgt	gaaaggagtg	ggaggtgatc	catgtatcta	ctgtgttgat	accgttatgt	360
actctttccg	tagcaaatac	gggcaggtgg	aattttctcc	caggcagccg	atagttcgaa	420
tgtggtcggc	atggtcatgt	ggaccaatac	acctacgaca	ttaccttcga	tggggagctg	480
atgatctttg	gggctttgga	aatgcttctt	aatggaatgc	ctgcatcgat	aagcagtgtc	540
gattgccatt	ggagagatag	tagcagttgc	cactactgcc	gctggcgaa	tcatgaattt	600
gatcatcttg	ctttccgttc	tcctttgttc	tttgcccgac	tgtccgactg	aaaaagatca	660
gcacggcgtg	ttgttggttt	cgtaccttcg	cccacgctta	tttctccttt	tagagagcgt	720
ttcatctctg	cttttcacgc	tccggtgtat	agccacgccc	gaacagatac	atgagcttga	780
tgatgcacac	tccgtcgtac	tgtcataacc	gctgataagt	ccgatgtttt	cgattgatgc	840
cccgtttcgt	atcgatgcat	atccacatag	cccgatacgc	atgggtaaca	ttgacgatga	900
cgattccacg	ctgaacggcc	ttctccagag	cttcagggaac	cacggctcca	tgggggcatt	960
gccactaccg	tatgtctcca	gactacaccc	ttcagtggag	ggatgccgag	aatgctctcc	1020
actactctg	tgtaatgccg	gggaatat	tcaggatcac	aacgtttctg	tccatttcgt	1080
ctggacactg	agggcggcat	cggccctctg	gtctgctatc	agagcatctc	gtatcgaatg	1140
tcgataccgg	cataggccaa	gggtgaaaag	ttgtataagc	aaaggcgtcg	aactggctcg	1200
caactgactt	cgatgtacga	ttgcccgcat	cagatagtgtg	tcgaagaaaa	tacaaacttc	1260
cggtacgcgg	gcatgccgtt	ttgtttgggt	gcagcaattt	cgatagcggg	gatgagggtt	1320
tcttgccatc	cgtacgaagg	gtaccgatag	gcagctgtga	ccctgtcaag	atacgggttt	1380
ctgcagatca	tccagcataa	agcttagagc	agaggccgtg	tggccatcgt	atcagtgccg	1440
tgtaggatga	caaaaccgtc	gtaggcccg	aattctcccg	aatgggtgtcg	gccagcctta	1500
cccacaaatc	cggagagatg	cggccgagtc	gatgggagga	tcaaactgga	tggagtcgat	1560
tttgaaacga	aatttttcag	ttccggcaca	ttggtttcca	gatatttgaa	gtcgaaactt	1620
ctaatacttt	cgtctccgga	ttctcaatca	taccaattgt	ccccccgtat	atatgaggag	1680
aatcgagaaa	cgctctgaag	cagatttagt	ttgcatatgt	ggtagagctaa	acaaaacggt	1740
ggcgggtttt	tccttccggc	ttccagatcg	tacagccatc	ggactatggc	tttggtatcg	1800
gccgggtgcg	aaaataataa	aagctcgttc	agagcatgct	ttacggccag	agcaatcggt	1860
ttgaagtgtt	aaacacata	taaacctgat	gatgtccat	ccaaaataag	ctagcacgat	1920
attgtctgag	agcgtagaga	ggaaaacgat	caggagtaaa	gtcaagagga	taactct	1977

(2) INFORMATION FOR SEQ ID NO:1056

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2607 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...2607

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1056

ttcttttttt	cactcatctc	ttgcagacga	ctcataaacg	cttgctttgt	cgaagagatg	60
acgcttctct	tcggcagtc	atgatgcata	tcccgataac	gaattttatc	gaggatctca	120
tcgatggaag	tctttgtttc	tcgtatttgg	gatccgttcc	actcttttta	gcagccggat	180
tggtcgttct	tcttaccgaa	agcgaaggctt	cgagcatact	tttcttcggc	cggagagcga	240
gctgaaaagt	cggtcatgcg	atcgagcagt	cgctgaaacc	aaaccgtgat	gtcctgcctc	300
gggccaatga	aagggcaaac	aagactccga	aagccgctcc	tccatatgtg	ccacgtgacc	360
accgaagtta	tcccccgctc	atagcaatac	atcaatacaa	aaaggatgag	agccaatgtc	420
gtcagcttga	tccgacctat	gataacagat	tcactcgtct	ccagcgagca	taaaaagcca	480
tccggaagac	atggccatca	cgctggcaga	agctccgata	agaggggaaat	gagacaaacc	540
aatgaaaagg	cgtcagcgaa	caagactgcc	aatacataga	gcaatcctcg	gccagtccgc	600
caagcagata	gacactgacc	agccttctgg	gattctgtag	cgcaggaaaa	gctgtccgaa	660
ccaatagagc	cacagcatat	tgaagaaaga	tgccatagat	ccgagtgcag	ccatatgtac	720
gtgaatagcg	tccatgatgt	ctcgaaaagg	tatataaatc	gggggccaac	caaagccacc	780
gtcacgata	tacggatcgg	catccaaaag	agacagaaaag	gcatgcaaaa	gccaacgaac	840
aaggagatca	agaccgtgaa	taccatcaaa	cgagtattca	tacagccaat	ctcaggcggt	900
ggcgcagttc	tctaattgta	aggtccatcg	actctccttt	cctgcgccag	aggagaatga	960
gtataatacc	tcctatcata	cacccaaatg	agcaaagtga	gcgatgttgc	taccacctgc	1020
catcggtgca	caccaaggaa	cagctctaca	aggccgtata	taataacaaa	ccacttggtt	1080
tgatgggaat	ggggataaag	aaaaggtaga	tctcaccatt	ggggaaggca	tcccgaaggc	1140
caatagcaac	ccgaatacgg	ctccggaggc	accgacgtcg	ttggcaaatt	gaggaaagca	1200
ctcttgagca	tctccgtacc	ctccgaaagc	gaacaaactc	ggccggactg	ttcacgatgg	1260
gcatcagatc	cacacccata	cgatctgctg	tgccaatgca	gccgtaagac	cacaaataac	1320
ataaagatga	ggaaacgctt	cgccccccaa	aactgctcta	tcagccgtcc	gacatccata	1380
gggaaaacat	attgaagaag	agatgcgaga	ggccatcggt	tagaacatat	aggaaacgaa	1440
ctgtatggga	ttgaaactgt	ctgcctgaaa	taatgcagcc	ccatgggtatc	gttcagatcg	1500
atattgaatc	gtgcctcaat	acgtaagtcg	cgaacaggaa	tatcgcatcg	atgatgatca	1560
ggttctgctt	acgggtggag	caaactgata	attcctttct	ctaaagctat	tcatatttgg	1620
attgttcttg	ttttctattt	caataccaa	tattcgtgat	gggacgttgc	tctgctgata	1680
nttcagatcc	tgcaagagt	aactcttcnc	cgatagacga	aannatagga	cttgtatgct	1740
cctataggga	tgaactggc	cgagtagccc	agcagtgcat	gtcgcgagtg	acgttgccagg	1800
taagcgatgt	tatttcttca	agtcgaaatt	gtagttcgca	ttgaatccga	agctccagtt	1860
cgtgtaggct	ggatattgcc	gcgaaaagctc	agattctgcg	ttaccgggta	gagtgtccca	1920
tcttattgac	attgtaccta	ttgtagtccg	tagcaatatt	caactatagt	cgaaggacag	1980
gctccatggg	atcgaatatg	cgaagtaaca	tcttgatcca	ctgctccgcc	ctgacgggtg	2040
cgctcgagga	gcgaccccca	ctttcatttt	gcggtcttcc	tccctcaagt	atatcggcag	2100
catcgctcct	tcatgaggag	tagcccctgt	gtttttcttt	tcatctctcc	gctccttttg	2160
ccactgaaaa	gagctatcaa	tccgctgagc	gactctttgt	tgagctatag	ctgaaagaag	2220
taccgcgtact	gatcaggcgt	gccaatccct	tgccctaaaa	atgcgcaggt	cgttgctctt	2280
atagggaatg	atcttcccat	ctttccctca	taatacttcg	tcaaataagg	atcgaacaga	2340
cgggacaagc	cgaggtaaag	ctcttgga	ggcgaagtgc	cagcgaagcc	gagatattgc	2400
tcacgcggatc	gaatcggcaa	acatattata	ggatgtagac	catgtgaact	atctatcagg	2460
ctgatcttct	tgatccctgt	cgaatccgat	ttggatttgt	cttggcctct	aagttgttgt	2520
caaaagagaa	attgacagat	cctgcattcc	catggaggga	gcaccgaata	tctgctcgaa	2580
ataaggagag	tagagcacgt	atgcagc				2607

(2) INFORMATION FOR SEQ ID NO:1057

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1008 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1057

ctgatgatag	caggcaaaaa	gatcgaggat	gtgcgatatcg	tagtgaacgt	gcaggagcat	60
cggcttttctc	ctgcacaaaa	ctgtacgaat	ccttcgggtcc	agaagagaaa	acatcctgat	120
gctcgacagc	aaaggggtga	tcacggcgat	cggacggatc	tgaccgaaca	gaaacgctac	180
tttgccaccg	aacgtacgat	gtgcacacgc	tggccgaggc	cattgccggt	gcagacgtct	240
tcgtcgtctg	tcccgaacca	atgtgctcac	gcaggatatg	gtgcggacga	tggccccaat	300
cccattgtat	ttgctctggc	caatcccaat	cgggagatta	ctttgagcaa	gctactgccg	360
ctcgtgagga	tattatcatg	gctacggggc	gtcggattat	cccaaccaga	tcaacaatgt	420
gatcggtttc	ccttatatat	tcgtggagct	ttggacgtta	gtgccaaaggc	tatcaatgag	480
gaaatgaaac	ggctgctacg	atggctatcg	cggattttggc	gcgagagact	gtccccgaca	540
agtactgcga	gcctatggca	atactcagtt	gcacttcggg	aaggactatt	tattcccaag	600
ccggtggatc	ctcgtctgat	cgttcgcgta	tctactgcgt	agcacgtgcg	gcagtcgaga	660
gcggagtggc	tgagcatcct	attgcgattg	ggctgcttat	gaggccgaat	tgttgggacg	720
ggtgggactg	atgagcacct	tacgcgtcgt	cttcatgaat	ctgccaaagct	caatcctcat	780
cgcggatcta	tgcagcctgc	gagaatcctt	cgggtgctgaa	agctgccgta	tcgcacgtgc	840
acatggaata	gcccgaaccga	tcatgttggg	ggatgagaag	caattcggga	ttttgccgca	900
gagttggatt	tatcttttga	gggtatcgaa	acgttaatta	cccgtttccg	atgaaagaaa	960
aggcttcgcc	gtcattcatt	tgcccggtgc	tttgccgaac	agaactgg		1008

(2) INFORMATION FOR SEQ ID NO:1058

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2271 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2271

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1058

gggagcttcg	attcgattca	tcagatacca	gcgtttcgat	cgtttgtgcg	ttcgtattgg	60
atgacttcgg	cattgccatg	cacctgtatc	tggcgtagacg	gctgtcctgc	atataggctc	120
tgatatgtct	gcggcgacgc	tggatcatcat	gacggaatct	atccgccgaa	cggcaagagc	180
cttggttaagc	acatgcgata	gtccagactg	tcgttgcgga	atttgaaccg	gacgtatcgc	240
ccgctaactg	ggagtcttca	ttccacataa	tggggttgtc	ataaaggtag	agcaagaatc	300
gcgagagtcg	tactgcatag	agtcggcaat	ggcttggaca	tcattcgata	aaccgcgtaca	360
tgtctgtacc	cgcgtgctat	ccgcctatcc	tcgggacgcg	acgctgcgtg	atcatctcaa	420
gcgtgtcggc	tgtgccccac	aggtgtcggg	tttggaaaag	tcgatcatat	aagatcgttg	480
ggtggcaaaa	catagtcctt	cttctcatcg	taataaccat	actccccata	aagagaagac	540
ggttcaccgt	atcgggtgag	atcatattgc	cgaaggcttc	gccaaaacgg	tacgacggtc	600
gtaaaagatc	gagtcctccg	tcaattgctt	ggccccgtgg	aggaataaac	gatggagcga	660
tccagcaaaa	tgcttacatc	ggtgttgaat	cgtacactcc	tcgcgtagaa	acgatatagc	720
cggagtccga	tctcactccg	taggccccaa	tatgtgactg	atcttgggtat	ctgtattata	780
atgagttctt	ccgtgtccat	ggtatagtcc	ttattttcca	aatggacatt	atccggaaga	840
tggcatcgga	tgtggtggga	gaatattctc	catagctgga	agcagcgtat	tgagagagtc	900
gactatgcta	ccaccttcga	aatagtagcc	cggttcatga	cccggtcata	atccaaacta	960
tccgtaaaga	gagtagccga	cgattttcca	gtcgcacttc	atggcgaaga	cgagcgtatt	1020
tgatgtttca	tcataatgga	gatagcgggc	gaacatggat	acggtgtcgc	cctgctgctg	1080
gaaacttggc	cgaatgcttc	gaaagtgttc	tcttcctgat	taagatggcg	ctgtcgcagc	1140
gcatacacagc	tccttcatgc	ttgatcacga	cattgcaagc	agacgctgta	catcgggggtt	1200
gtagagtctg	tcgtaacgga	gttcacggca	tgttcgagga	tgacatgcgt	tttccccctta	1260
ctcccttttg	gaggggacct	tggagagag	caagggcaga	aaaagagaga	gtgacgatca	1320

gaatatcgcc	cccagttgtc	ggctaccgag	ccgagattct	cgtttttctc	ccttctcatc	1380
tatttgact	cgagacagaa	agaaactctc	tctccaaaga	gttttctttc	caccccgaa	1440
tattgtctgt	cttcaagcca	gcccggatag	ggaactgaca	gttgcggtag	gcaggttcga	1500
tgtggatata	agtttctttt	gcttcttctt	tatccatgca	tcgacaactc	cttcttctt	1560
tttgtttagg	ctaaggcctt	gatcggttgg	aaatcggagt	tcagtgtggc	tcggtgtctt	1620
cgatcagatt	tttgatcttc	acgatgacaa	cctcctcatt	accttttccg	ttttgagaat	1680
aaaaggcttg	gaaacttcac	cgggcttcat	attgtgacaa	ctcggctgat	gtcttgtggc	1740
aactcttcgt	acttgaagcg	ggagaactat	aaaaatcgct	ctgctggagc	ttattgacca	1800
taagtccctg	attttgcgcg	tatcgttatc	ttcagagtat	tgggcaacgg	ctttttcaaa	1860
ggcagcttat	ttccttttat	cagggagtac	aagctatcca	gcttggttgt	atttccgtca	1920
aggcagcatc	agatactttg	ggtttgagta	cgatctgtcg	aaattgatca	catcgctctg	1980
tttctctatg	agctgaacga	tatgatagcg	tcgtcggttt	taatgatcgg	ggaaacacgc	2040
ttcgtatcag	taagtgaaaa	accacgcgag	caaactccgc	atccagcgaa	gccttgctga	2100
caaagcctat	tcgccaccct	gtaaagcagt	cttggagtct	tcggagtaca	aacgggcagc	2160
gtagtgaat	cgcgtcgtcc	ttcattgatc	tcatccgaga	attcggcaat	ctcttcttga	2220
tagcatccgt	ttcatgcaga	gagattaccg	gcttatggca	agtaattgta	c	2271

(2) INFORMATION FOR SEQ ID NO:1059

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1782 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1782

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1059

ggcaagccca	tttcttttag	ctggagggtc	aggtaaagat	tgcgctccaa	ttacaggtgt	60
ctactacatt	cagcaccaga	tcgggacggg	tttctctggt	agatattggc	gaatatacag	120
ttcttcagga	ctgtatggag	aaagagatag	gtgccgggca	ggtcgataat	ctctatcttg	180
tagtccccgt	gccggagaga	ccttctttcg	cttctaccgt	cacaccgcta	tagttcccca	240
catgtcatgg	gcaccgctgg	cgcggttgaa	tatggaggtc	ttaccgcagt	tgggtttcct	300
atcagggcaa	cgcgtattac	atgtccgttc	ggcttgactt	cgactctatt	tccgattttg	360
tcttcgctga	aatatcctct	gtcggatttg	ttgaatggat	tcgttcgaat	cgggatttgc	420
ggattgctct	cctatgtcat	tcttgccggt	gaagaagtcg	cattcgagga	tatgagctcc	480
acttctattt	ggctgcatcc	tctctccgta	aagagacatt	gtagtccatg	atgcgataaa	540
gaccggatcc	cgcaatgggg	cacactggac	gacggtaatc	gtcttgccctg	cacaaatccc	600
atttctaaaa	tccgtttgcg	gaataccccg	cgacctttac	tcgtacgatt	actgcttgat	660
cgcccgatat	taattctgat	aatctctgat	agcgcaaaaa	tactaactaa	accaatgaat	720
aaacgagaaa	tacaattatt	attaaagaga	ctggtgcaca	ataaccctct	ccccctctca	780
tattatcaag	acagacacaa	gcattgattt	gacgaagaaa	ggagagcttc	atgaatctct	840
ctgcaaacct	caagtaatct	gaaaaacact	taagaatcag	cttgccggcaa	aagacttcaa	900
tgaaagtcct	ataaaatagt	tgcaaacagc	tatagtttagc	gcattgatgg	gagcagaatc	960
agctgacaat	cgcgtcctgc	tcgtgcaggg	agcaagaatc	agttgacaat	cgcgtcctgc	1020
atcgtgcaga	agcaagaatc	agctgacaat	cgcgtcctgc	attgtgcagg	aagcaagatc	1080
agctgacaa	cgcgtcctgc	attgtgcagg	aagcaagaat	cagctgaaat	cgcgtcctgc	1140
atcgtgcagg	aagcaagaat	cagctgacaa	tcgctctgc	atcgtgcagg	aagcaagaat	1200
cagttgacaa	tcgctcctg	catcggcagg	gagcaagaat	cagctgacaa	tcgctcctg	1260
catcgtgcag	ggagaagaat	cagttgacaa	tcgctcctg	catcgtgcag	gaagcaagaa	1320
tcattgacaa	tcgctcctg	catcgtgcag	gaagcaagaa	acagccgaca	atgcgtcctg	1380
catcgtgcag	gaagcaagaa	tcagttgaca	atcgcgtcct	gatcgtgcag	gaagcaagaa	1440
tcagttgaca	atcgcgtcct	gcacgtgcag	gaagcaagaa	tcagttgaca	atcgcgtcct	1500
gcacgtgcag	ggaagcaaga	tcagttgaca	atcgcgtcct	gcacgtgcag	ggaagcaaga	1560
atcagctgca	atcgcgtcct	gcacgtgcag	ggagcaagaa	aacagccgac	aatcattctt	1620

atttctcgcc	tatcggcaca	agcattgatt	tgacgaggaa	aggaatcttc	tctgatggaa	1680
acttggtgaa	atttctatatt	gctcggtgcc	catatccgga	ggtttgacct	ttcccgaaga	1740
cactaagaat	ctgctctgca	gcaaagagtt	caatgaaaaat	cc		1782

(2) INFORMATION FOR SEQ ID NO:1060

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1158 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1060

tcattcttgat	cagaatattc	tcctcctcaa	tgccttccgt	ccggtccgaa	gggaaaagag	60
aggtaagaga	tgattattgt	tggttcttat	tattgtaatc	ttgggggtga	agtctttcca	120
aatcttcagc	agcttttctg	tagcttctgc	agactgcctt	ggaactcgcc	gccggcagca	180
ttcttgtgtc	cgccgcaccg	aagttctcgg	caaggggtgt	caccggatag	ttgcctgtgg	240
agcggatgag	agcttgatct	gatttttgtc	ctctcgcagg	aaacatacac	cctcatccct	300
gcaatatcga	ggggcagatt	ggccagacca	tcggtatcac	ccgccggttg	tggaatcgta	360
ccagctcctc	tgtgacagc	gtgaagtatg	ctcgccatt	tccggcagca	aagtcatttt	420
ctcgtacagc	acataaccct	gacctctcat	ttgccttccg	aatttttgctg	aaaggtattg	480
cggatgatcg	gtctttgtcc	gcaccggctc	gcataagatc	tgctacgagc	agataaagac	540
cggatcggaa	gagctgtagg	aaaatacgcc	cgtatccgtc	agtatcccgt	catcaaagcc	600
gtggccgcat	cttgggtcag	gtaggactcc	atgcctaggc	cttggccaaa	cgcaagacca	660
actccgaagt	agaagacagg	ggggggagct	gaagctgaga	gtgaagatat	ctgccggata	720
gagatgatga	tcgatagcac	tttgggggct	gacgaactct	ccaatgcgct	ttgcagtcct	780
gctaccgatg	tgagcattg	aaatccatgc	agaagaccag	atcggcttca	gccatgcctt	840
ctccgcctcc	gaagnatgag	tctcgtgcac	tattactttg	ttgctcccgg	aatgcagtac	900
aggtattggg	gaatatcatc	aggtacgatt	aactgatgtg	ggacntgcct	ttttctctca	960
gcatggcagc	aaaaccgata	tgcttctctac	cgagtcgccg	tccggagccg	tatgcgagat	1020
cagagcgatc	gctctgcctc	ctctaccatt	ttacgcaaag	ctggtgcggg	agccggatga	1080
tttttattcc	tgccataact	tttctctctt	agctttttct	tcgctttttt	tcagagattc	1140
gtaggggatc	ctctagag					1158

(2) INFORMATION FOR SEQ ID NO:1061

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1061

ctcggtagcc	ttaacagctc	ctttcgtatg	tgtgtattta	gcccacatcg	tagggcaagg	60
caaagggtaa	tggtcgtaga	gtctaggagc	ttgacgggtg	cttaaaacga	aacttacgcc	120
cttgccccat	accctgctgt	ccgaaatatc	tagcaaggca	taatagcacg	ctcgaaagaa	180
gtctgaggta	cgggtgccgt	ctgataagat	aaattggact	tagaggggtg	tgtgcatatg	240
cctaattggt	gaggttacct	gtggctgagc	gtaagccatt	actaatctcg	cgtaggagat	300
acagcttgag	aattggctga	aaatcatgct	cactaagtgt	tgcaccctgt	gaagtgtttg	360
ctatgttngt	ttacttgaaa	ctctgtagag	agttcttaat	caacggacga	ggnaacaggn	420
ggataacttg	ggcgaatagg	ctatatattg	actcatcaga	gttttctgtg	gaatataccc	480
aaggtaagat	atttacctta	ggtggctctg	ataatagacg	aaaggagagg	tgctgtgaat	540
acctctccta	atcttttacc	aaaatagctt	ttaggacact	aatggtcgga	gtatgaattt	600
t						601

(2) INFORMATION FOR SEQ ID NO:1062

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 861 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...861

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1062

tctcctgaca	tttggcacgg	tgtgcatcgt	cggcatcggg	acgctccgtg	ccaagcgcac	60
gttgtggatt	ttgagcttca	gtatcgagag	gcatcgatg	cccatgccgg	actttcgggtg	120
ttgatcgtag	catctcgagc	accttcaatc	cttgtatgta	tcgagaaaat	agctgtctat	180
caactccacc	agatcgttct	gtcttgattg	gatttgcga	tacggcgttt	gattaccagc	240
gcatcgccgg	atcgatgttg	ggatcacgta	taatatcttc	gagatgccac	tgggattatc	300
gatccaattc	ttcaaaaaa	aataatgctc	gatcgtttga	ggcgatatgg	attgttgcac	360
ggtgcgtcta	cgctgtcgg	gacgttatag	gctgaatagc	ctcgccgaaa	atcctattgc	420
acaacttgct	gatagtcata	atattattgc	cgcttaattt	gtcaaaaatta	taatgctatg	480
cggacaaaaga	atataaaaa	ccgattggcg	aactctgaga	attaagtcct	ccaatcgggt	540
tgtaaatgtc	taaaaagcaa	caataatttt	aatgagtcct	ttttgacttc	ttttttattg	600
cttatcagtt	gccttttcgt	gcttcttggc	gtgcgggaat	ttcctgcttc	agctttgcct	660
ttgccttcgc	aagattttgt	gccgtgttgc	tcttgcactc	gcctttttct	gaactgtggc	720
agtcactttt	tttgctctt	tggatttgtc	cttgctacaa	tcttttgcgt	tggcatcctt	780
ggcctatcct	tacagcagtc	tttggcatct	ttagccttgt	ctttgcaact	ctcccagctt	840
tcttggcatc	acaagctttg	t				861

(2) INFORMATION FOR SEQ ID NO:1063

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1219 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1219

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1063

tgctcaccga	tcccacttgc	gacagagcac	gccggacggg	aagaatcctc	ctcaagagcc	60
aaacgttgcc	cgcacgcagg	aaaacggctg	cgtggagacc	ccgaaaagct	tgcctctata	120
ttccacgttg	gcttcgagtt	tgaattcccc	acctgatcca	aataggaata	ctgattgtcg	180
gaatccggat	tgaacctccg	gggccgatgc	tacggacggg	gaaagctctg	atactattgg	240
caccgctaca	tagaactgct	cgctataggg	tgccactcgc	atattgccat	agcttatatc	300
acgcctgtcc	cgaaacgggt	tgccagtgc	tgattgcggg	ctaggtatag	gaatagcgca	360
gttctcccgt	ggctttgatg	aactgagaga	agggacgccg	acgaaattct	tggtgtcgct	420
gtacttcttg	ccggctgcc	gtagatcaga	ttcaggagat	tgcctgcctc	ggatagtcg	480
aattgcatcc	aagatgatga	ggacttttct	ctgaaaacgga	tttgttgaac	gtatagataa	540
ccccatttga	gcaaggaact	gactctgaag	gctgagcagc	aggggcgggt	gttcgccgta	600
atggcctgga	aagtttctgt	ctgatgcccc	aggaggtgta	gttgagcttg	agcgggaaaa	660
tagcatgccg	gtgttccttg	gagggcgaaa	ttcgtagggtg	gtcgaaaagc	cgaaagagta	720
catgctaaag	tagtggccct	gttcagcgcg	gtggcagaag	cctgaaaagt	cgtagtcgtg	780
gggtgtaata	gtatttatcc	agcagaccgg	gaaatacaat	cgagggaac	gagggttcac	840
ggcgcgtattc	atgttgtacg	aatttatatc	gatcagccga	ttctgctatt	ttcgggacga	900
ttgccgggtct	cccactcata	cgatccaccg	aattccaaga	aagattttct	cctccgccga	960
atacattgcg	ccgagcaaga	caaaattcag	tccgggaccg	atgaagtc	tgcttttgct	1020
cgtgaacaag	tctctaata	tgcatcccaa	ggtttgtcga	gggtgggttag	cagtcgcaat	1080
ccaaaaggcc	ggaaatggaa	tcgcgttgca	aaaaattgag	atcgatacgg	agaaggctcc	1140
caaacgagcc	aaggatttgc	gtgtcgtctc	atcgtcttct	gccgatacag	attgccggag	1200
aaagaaacga	aagcgtttg					1219

(2) INFORMATION FOR SEQ ID NO:1064

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 916 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...916

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1064

ggagatcttc	ggagtggcga	taaagaacag	ctacaacgtc	tatatgaact	gaaacgtcgc	60
aaagatgata	gccgcacct	ttttcttgat	gaactccgga	gaaactta	aagcgtatgg	120
tggaaagcga	tctgaaagc	ggcaagtcaa	aaagcgataa	tcgcattgg	taatcaggct	180
tcctcaaata	aaagggagtc	tgatttttac	atccatgcaa	ggagcaatat	gatataatat	240
gtctatgccg	atgttgccat	ttctcttgaa	atttacgagt	gagttgtacg	atttccctcc	300
aataatagct	aattcgagtg	tcagtttctc	caacttagtg	agctcgcaaa	ggctttcttc	360
tccgtaaaat	tgtcttttcaa	agcgactaca	gttggttata	attcaccocg	acactgcgaa	420
attgtccgta	caaagtgtgc	atttttggt	gtaatcgagc	aacgaacgat	ccacttttat	480
cactcgaaag	tctcattaaa	gacccttgcc	ttgatgaaag	cggctctatt	ttgaagcccg	540

799

attgctcgaa tagcgtagg aaacgagcaa attctgtgtc cgtaaataca ccatacaaca	600
atggctcggct cgttcattct tgggaggctg tcccacattc tctttgtcat tactttggat	660
tttaatgggt tgtaattctc tcttctgaaa tagaacgtgc taaacacaat tgaaatccat	720
tagagagcgt tcacgtaaaa tagccaatca agacaacgaa aacttctatc caagaacacc	780
gactcggagg tggtctgccc tctgcaagag caaggggttt gagttaccga aatatttcgg	840
gtaacgcaag acataccttg ctatttgcac tgacgcaaat aattcgttcc gaagaacgat	900
atgttattct ctcgaa	916

(2) INFORMATION FOR SEQ ID NO:1065

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 399 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...399

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1065

cttccttcaa atttcatctc ttccgtacca tcttctgttg tgaaagcaga atgtccacag	60
tggcattgtt ttccaagatg agcatctccc accttgatac aacttgtgca ttgagagcag	120
caatgaaacc tgccaacaat gcgatgcgat aaagattttc ctcatatttc tttttgtttt	180
tttattcatt cattattgcc atcggattgc ggattgatct ttacatgcac aacgtcatac	240
acttcaacgt ctgcacatcg tatacaaaaag ccacaatcga ataattctcg gctagaaggn	300
catacccgag agcggttcaa cggcgtaagt atacaaataa tcttgagatt cacaattct	360
tcgccccaaa taccattaac ggctccacgc aaacgtgga	399

(2) INFORMATION FOR SEQ ID NO:1066

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1066

gtgattgtgc tcgtaattct cgactgccgt attgccatcc acctgcggac gatcagctta	60
tcctccaaca gatacacctg aaccatggac ttcgggagggt attccccctcc agtattttac	120
cctttacagt caccttgatc ttttgggatc ggtgtattcg gccacggcaa agatattgat	180
cttcgccttt tgctcctctg ctcggcaata ggcacgtccc acgttttgta gctcttatca	240

taaactagga	agagccgaac	tttttgcgcg	aaaccatcag	cgcagggaga	ggggattatt	300
ggcgaacttg	ctataatatg	cgtctccggc	ttctgtacgg	aaagaggtgg	cacgagagat	360
ccagggccgg	catgtatacc	gacaacagtc	aactcttacc	gtattgctcc	ttgagagccg	420
ccagtttgcg	atgaccttcc	gacagttgag	acattttttg	ccggtaaatt	cttcagccaa	480
aacatatttt	ctgtgtgcgt	ctgcgtaatg	ttcgatctnc	gaaggattgt	catccggatt	540
cg						542

(2) INFORMATION FOR SEQ ID NO:1067

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3822 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3822

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1067

tactgtttgt	ggcaagggtta	attgttataa	tcaagacaag	gagccgaagg	aaagcgagtc	60
ttaaaagggc	gcccatttag	tcacgagcag	tagacgcgaa	ccaagtgatc	tacccttggg	120
caggttgaag	gttaggtaac	actaactgag	gaccgaatcg	gtaagcggtg	aaaagctttc	180
gaatgaactg	agggtagggg	gaaaggctaa	tcaaacttgg	agatagctcg	tactccccga	240
aatgctttag	gtgcagcctg	ttggatgtta	tcatgaggta	gagcgactga	ttggtgagag	300
ggtttcaccg	cctatcaagt	ccagataaac	tccgaatgca	tgaaattgac	cgatggagtg	360
agggcatggg	tgctaagggt	catgtccgag	agagaagaat	ccggaccacc	ggctaagggt	420
ccgaaataat	tgctaagggt	taaaacgaag	tcaagatgca	gagacagcta	ggatgttgcc	480
ttggaagcag	cattcattta	aagagtgcgt	aacagctcac	tagtcgagga	ttttggcatg	540
ataatacacg	ggcataagca	atttaccgaa	gccgtgggat	atagtaatta	tcggtagggg	600
agcattccag	cgacgtagaa	gggaaaagg	cgacttttct	ggagtttctg	gaaaagcaaa	660
tgtaggtata	agtaacgata	aaggggagag	aacccccctc	gccgaaagac	caagggtttcc	720
tgatcaacgc	taatcgatca	gggttagctg	gggcctaagg	ataagccgaa	tggtgattcc	780
gatgaagca	cgtctaagtt	tccggtactg	atacagagag	cgatgtgggt	acgagaagtg	840
acagtccggc	cgtctgacgg	aataggcggt	taaagggtgt	agtgttgatc	ggggtaggca	900
aatccgccct	gagagtcgaa	cctgacagta	ccggagtaca	agtacgaagg	gataaggacg	960
taaaccggct	ccaagaaaa	ccgctaagca	tatttctgtg	ttaccctgtc	cgtaaaccga	1020
cacaggtggg	gggttgagta	tactaaggcg	ctcgagagat	tcgagggtta	ggaactagca	1080
aaatggctct	gtaacttcgg	gagaaaggac	gcctgtctcc	ggacaggcgc	agaaaccagg	1140
cccaggcgag	tgtttaacaa	aaacacaagg	ctatgcaaaa	agcaatttga	ggtatatagt	1200
ctgacacctg	cccgggtgct	gaaggttaaga	ggaggagtca	tcgtcaagag	aagctctgaa	1260
ttgaagcccc	agtaacggcg	gccgtaacta	taacggctct	aaggtagcga	aattccttgt	1320
cggttaagtt	cgacctgcac	gaatgggtga	acgatctggg	caactgtctc	acgcgatctc	1380
ggtgaaattg	tagtatcggt	gaagatgccg	attaccgcga	agggacgaaa	agaccccggt	1440
aacctttact	atagctttac	attgtatttg	gcacagatg	tgtaggatag	gccggaggca	1500
gagaagcggg	tacgccagtt	tcgtggagtc	gatgttgaaa	tacggccctt	ttgatgtttg	1560
gatactaagc	gcggcggtgc	aggacagtgt	atggtgggta	gtttgactgg	ggtggtccct	1620
ccaaaagcgt	aacggagggt	tctaaaggta	ccctcaggcc	gattggaacc	ggtcgagag	1680
tgtaattggc	caagggtgct	tgactgggag	acaaaaagtc	gcacaggtag	gaaactagag	1740
catagtgate	cggtgggttc	gcacgaagg	ccatcgctca	aaggataaaa	ggtactccgg	1800
ggataacagg	ctgtcactcc	caagagctca	tatcgacgga	gtgggttggt	acctcgatgt	1860
cgctcgctac	atcctggggc	tggagaagg	cccaagggtt	gggctgttcg	ccattaaagt	1920
ggcacgcgag	ctgggttcag	aacgtcgtga	gacagttcgg	ctctatctgt	tgtgggcgca	1980
ggaaaatttg	gaggggtctg	cactagtaca	gaggacggtg	ttggacagac	ccctgggtta	2040
ccggttgtag	cccgaggtca	ccgcgggtat	ccagctctgg	taaggataag	tgctgaaagc	2100
atctaagacg	aagccggcct	caagataaga	tttccataaa	taggggtggt	aaagacatga	2160
ccttgatagg	ctgcagggtg	atgattggta	acaattaagc	cgagcgtact	aatagcccga	2220

aacttttgtg	catcccgaag	gatgcggtat	aggtggtttg	ttgccgcaaa	gcttgaggaa	2280
ttatttgttg	gccttttcgat	atgcgattgc	cttttcgaag	tattcaggtg	gttataacgt	2340
tggggtacca	cccttcccat	tccgaacaga	gaagtttaagc	ccaacggtgc	cgatggtact	2400
ggtcacagtg	ggagagtagg	acgccgccgt	tttttaagaa	gcgtgagaga	agggggggat	2460
aggatctcca	ccctcctccc	cggaaaaaaa	ggtgaaggaa	gagtctcgaa	tccgaggctc	2520
tctccttttt	tattttctct	ctctccaaaa	tcattttgct	tttctctcta	ttcctctttc	2580
tccttttctt	tccttcttct	ctcccccttg	ctgcgcgtta	ttcctctaac	agatcgtacg	2640
ccaacttctc	attgttcggt	aggtaccata	ggtagccgcg	gacggatgga	tagccatcga	2700
gacgagcagc	cggatataat	tctccatctg	tgcatgatga	acttgcgaa	tgctccgaat	2760
ttatagtcta	cgatgtctgt	gtgatcgtcg	taggaatgat	ccgatcggga	cgacgctggt	2820
ccccttccgg	gaggagaata	tctgttcatt	aagaactcgt	ccgctaccat	cgaaccaacg	2880
agacaatcga	cgtccgaagt	gacaacagat	aggcgatcga	ccaattcgat	cgctcatct	2940
tcgtgacgat	tcctcccgcg	acataacgct	caagagcagg	ctcgatgtct	tggcgagaac	3000
gatgtcggca	aggattctgt	gcattacatg	tccgtggtaa	gcggtttgtg	cctgcgataa	3060
aattcactgc	cttcaggccg	gatagccagc	ggtcggctac	ggccgagaga	cttccttttg	3120
gcagggtaaa	aggtaaccag	aagaggggtg	atctgtcgtt	ttttgtctcg	cggatagtag	3180
cggactcccc	agcagtacat	atcggactct	gtcttattct	cgtccaagga	agcagagcta	3240
aatgtataag	atctcccacg	gtagagagcg	attcgggctt	ttggaaggat	gtaaccacag	3300
atgcatctcg	tccttcgctc	gtgtcgtagc	caataaagaa	gattgagggt	gtcaaggaga	3360
atatacggctc	tttctcgga	aaatctgtgg	caaacattgt	ttgtgccatc	tccttcttat	3420
atctgatcgg	actacgggca	ggatattgaa	aggactgcgg	gcaggatcga	tcttgaccgc	3480
aggatgtgtc	gatgtgctgc	ttcgtcgtcc	agattccagt	ccaagaaaga	ataagaacaa	3540
cgcggaagcc	tagacctttc	gccttgtgaa	tggtcatagc	gtgacggcct	gactgttggg	3600
agcggaggaa	atacggcttt	tggcatcccc	gtttcgtccc	accattgcag	gaaagagtgc	3660
agatcggcag	atcgtcgtga	ccgaaatcat	tgattaaatc	cagccaagca	attagatagg	3720
gcattctctt	tcaggtaggt	atgaatggaa	aaaagagacc	aatccttctg	ccattcgtat	3780
aaggagcgac	gacgaaggtt	ggcaaattct	gcaagctctg	cg		3822

(2) INFORMATION FOR SEQ ID NO:1068

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1448 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1448

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1068

gagggtatt	tacctgcttc	tattgcagtc	aatcagacaa	cagctcacgg	caggacgtgg	60
atttgtagga	aggctctgag	agacaaacag	gcaacttatt	tgcaaacttt	cggagccgac	120
aagcttcagc	gagccggacg	tatcacaggc	atgattccca	tagtccagca	tccttgcggg	180
aatatgatgt	gtgactcgct	tccggtccca	atgacggctc	cccctctccg	atgtttacac	240
ccggcggtcg	taggtttgaa	ccagcctcgt	attataacgt	cagttcgacg	taagaaacgc	300
caatgaataa	ttcttttctt	gatcagaggc	taatgcccta	aaatctcaga	caaataagggg	360
tacctgtctt	ctgcttggtg	cgaaccaaca	ttaaattcgg	attgcttttt	tgaccgaatg	420
ttacagtccg	tacagaaaga	tggctatacc	atagggcaca	tggaggtagt	ccgtagggga	480
tgacgagcta	cccgtagcgc	tcttcgagct	acgctgtaga	gctcagcgag	gtacgccctc	540
agcgtagcga	gcccagccgt	agagttccgc	tccgggagct	gtagaggtgc	cgagccgagc	600
cctagagccc	ggcgcgccga	gccctacagc	gtagctcaag	agccgtagag	cgcagctcgg	660
tacgctctac	ggcgtagccc	gagtcgtgta	ggcgtagctc	gacccccctt	cggagtatgt	720
tccgaacggc	tataaacaat	gcggattcga	tccaagaaaa	acatgcaata	tgctgtttgt	780
caactatttc	atttctcggt	tgagagattt	cagcttcggg	agacttcgac	atcgatgaga	840
cgtcaaactt	tttccctttc	attttctgat	cggttatagt	tatatcccaa	caaaggattg	900
atcgacaaat	acttatgaga	gtcggcacca	tacgcttata	tcgaactcac	tttataagaa	960

taacgcgaag	caagggggag	aaagcaaagt	gccgattatc	ctttgctgtg	tccgactgag	1020
gatgaaaagg	aaaaggaaa	gaagatgaag	ggaaacagaa	gggaggaaa	gaaggaaa	1080
agaaagcata	tagaggaata	gagagaaaag	caaaatgatt	tttgaggag	agaaaaataa	1140
aaaggagaga	gcctcggatt	cgagactctc	tccttccctt	ttttccggg	gaggagggtg	1200
gagatcctat	ccccccctct	ctctccgctt	cttaaaaaac	ggcggcgtcc	tactctccca	1260
ctgtgacgca	gtacatcggc	accgttgggc	ttaacttctc	tggtcggaa	gggaagaggt	1320
ggaccccaac	gttataacca	cctgaatact	tcgaaaaggc	aatcgacata	tcaaaggcca	1380
acaaataatt	cctcaagctt	tcgggcaaca	aaccaaccta	tccgcatcct	tngggatgca	1440
caaaagtt						1448

(2) INFORMATION FOR SEQ ID NO:1069

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2336 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2336

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1069

cggcagtacc	ttctgtagaa	aagcttgccg	aagatcctat	ggtactcttg	cctcttcggt	60
tttcgacgaa	taccgcaaac	tctacaacga	acttcgtcct	atgacgatcc	tattctaagg	120
gcacaacgca	cctacattgc	aggctctctg	aaatggatgg	cgatcaggat	caattcccgg	180
atgctaacct	gacactcggt	tcacctatgg	tcaagtgaag	ggctattcac	cccgtgacaa	240
tgtttctacg	gacatcaaac	cacattggat	ggtgtgatgg	aaaaagaaga	tcccataatt	300
gggaatttgt	agtcgatccc	aagctgaaag	ccgtatacga	gcgaaagact	tcggggcgta	360
tgccgatcgc	agcggtcgca	tgccgttagc	ctttgcgccca	ccacacatac	aaccggcggc	420
aactcaggca	gtccgggtcat	gatgccaaac	gcgaactgat	cggtctcaac	ttcgatcgta	480
actgggaggg	gtcgggtggcg	acatccagta	tctggccgac	taccagcgca	gcatcattgg	540
gatattcgct	acgtcctgct	tgtgatagac	aaagttagcg	gttgccaagc	ctgttggatg	600
aaatgaatat	cgttccctaa	agctatagga	ggtgtgtgaa	cgctccggc	gcctcttatt	660
tattataaat	catatcgggg	cagatccctt	ccggtaaaatt	cggagatcgg	ccggtgtgcg	720
accggagagg	ggcagcccac	gaaagaaaac	attgacaaca	aaaacgacaa	gaagatgaga	780
ttgacctaa	ctccatgatt	tctctatccg	aaataccgga	gcgatactac	cgctcgacaa	840
tacttacgaa	gagaccctgc	tacgtcgctt	cgagaatata	ccaccaatat	ataccgcacc	900
aacgacgaag	cagcagaagt	cattgccaac	gaatagccaa	ggatatacgg	gagtcgcaag	960
cacaacacaa	atactacacc	tggtctgttc	cggaggcaat	tcgcccgtca	tcgtctacga	1020
caaaactgat	aaaaacatcg	cgaggaagga	ctcagcttcc	gcaacgtgat	tgcttccacg	1080
tattcgaaata	ctatccaccg	gtcagcgaga	acttaggctg	tctggccaat	tgcgcaagga	1140
ctttctcgac	catatcgaca	tcctgcccga	aaacatatgg	cacccgatgt	atatgcttcg	1200
gaagaaaaac	tactgcaagc	ctgtcggact	acgaatccaa	aatagacagc	ttgggtggca	1260
tcagacacat	gctctcggca	tcgggtcggc	cggcagtatc	gccttcaaca	gccccggggac	1320
gcacccaaca	catacacacg	actcgtcgta	ctcggccata	cggagcacia	cggtgctctga	1380
cgatattcag	ctcccacgac	accatccccc	catcggtctat	cgtatgggac	tggtaccat	1440
ccaaaaagct	cacaaggtga	ccctgctggc	tggggagaga	gtaaggcaga	ggtaatagcc	1500
caagctatcg	aaggaaagat	tgcgaggctt	ctccggcttc	gtccctgcaa	ttgcatcgca	1560
atgcctcctc	gtgctggatc	tatcggcatc	gtcttgtctc	acaaggatca	gtcgtcctgg	1620
ctggtgacga	gctgtatctg	gaacaaacag	ctcatacgca	gggctgggta	tggtgtgctg	1680
gactgaccgg	caagcccatac	ctgaagctga	cgaacaggac	tatacggaga	acggattggg	1740
cgaattgctg	gccaaatagc	gtcgcctac	gaggtgaaca	tcaagctctt	caacgacatc	1800
cagcacacca	tcacggctgg	ccgggcgga	aacccaatgc	cgatgacagc	agcaggcctg	1860
aggggcaacta	ccctatccca	agagggtggg	tatcttcagt	ccccaccccg	agacgatgtc	1920
atttcgatgg	gaggaacatt	ccacaaattg	gtcaatcagg	ccacgatgta	catgtagcct	1980
accagacctc	cggcaatata	gccgtgggga	tgaagaagtg	attcgatatg	tgtcgtacct	2040

cagaaatgta	tgccgccata	cggatcatgag	agcagcccca	ttctggccaa	agcgggaagag	2100
gtgcggccta	tctcatgcac	aaaaagatag	aaggggatcc	cgagcaggag	gatatcggtt	2160
tatgaaagga	accatacgac	gcgaagaagc	ccggacggca	tgcagtactt	gggattgccg	2220
gaggatcatg	ttcatttctt	cgatctgcct	ttcttgagac	gggattgatc	aggaaaaatc	2280
ctttgggaga	ggaagacgtg	cgctcatcat	ggctctattg	gaagagatac	agccgc	2336

(2) INFORMATION FOR SEQ ID NO:1070

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 834 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...834

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1070

gagttgctcc	cccgtgtcgt	gcaaaacaat	ctgacggcgg	tgctcaaagc	gaccggcgca	60
gctatcgttt	cttttccttc	ggcaagtata	tggcccggat	gaaaatatgt	tgctgagcga	120
tccggcaacg	ggggccttgc	aaatggaccg	gacgtgcgga	tgcacgattt	ggccacacga	180
aacggcctcg	aatccgtttt	cgtttcggcc	gcgtggcact	gcattcgacc	acgacgatgg	240
gctatgaggg	gagcagatcg	actaccgctc	ctcgcttcgg	caacccgatg	tgagacttcc	300
ggcggcactt	acggttacca	tgcgggccac	tgggagctga	gcggaaaccc	tcgttttctt	360
atcgtttcgg	ccgcacctat	catcgctctg	actgcctgtc	gcgtggcatc	tgttcacttt	420
gaacgataaa	tccgcagcag	acggcggcag	gagagccgag	ccgccttttc	gccggctctc	480
tcgctgcact	ggagccgggg	gcggcatgga	agctgaatgt	ctccgtccgc	cacgggtcatc	540
ttttggcggg	ttggagggat	ttcgctccgg	ctatacgcgc	agggactacg	cacctacctg	600
cttccttcgg	gcttcatgag	cgagaggcga	tattcggggc	aaacttttcg	gtcgactatg	660
gcgacgtgct	gcacctgttc	tattttatct	gaaagccgga	tattcgcgca	gtcgctccaa	720
cgaattgccc	cacttgacta	cacggcggaa	cataatatca	tccgttacga	gcgctattgg	780
cacgtcttaa	cgcttttttc	gccgatatgc	gtctgagcaa	gtttttcttc	ccgc	834

(2) INFORMATION FOR SEQ ID NO:1071

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1999 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1999

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1071

```

agccaagaaa caacagaggg agaaagagcg gccggactta aaaagaaaag ccttctaaat      60
ctgcatTTTTg ttcgcagaat ctaaaaggcc tgttcaaagt taatacgatc aagaaaaacg      120
gaggatgtcc gtaatctctt ccgaaaggat aggcttatcg cctgcgaccg atcagattga      180
gaaactcttc gcgagtgtcg attcctcaaa agctcctgta aagtcactgg tcgtagtcag      240
agagtttTgct tctccactcc acgcatctgc atgcacatgt gctgtgcttc gatacgacga      300
tcaccccgag agggttcagc gtattctgga tgcactcctt gattgtgtag tcagccgttc      360
ctgtacctga agacgacggg caaatacatc gacactcggg gcaacttgct cagtccgggt      420
atataccgat tggggatata gccacatggg ccttacggaa gaacggcaac atgtggtgct      480
cacacatcga aagaaatcga tgtccttgac gatgaccatt tgctgatagt cttcttcgac      540
atcgctgcgc gaaggatggc ttcaggatcc tcgttatatc ctttggtcga aactgcatgg      600
ccttagccac acgtagcggg gttttgagca gcccttcgcg ttagggctct cgccgagcaa      660
cgacagtact tgggcgtaat gctgttcaag cggctgcagg cttcttcttt ttctattctt      720
gtcatttTgtc agtatcttga cgaatcttat ctcgtagcac ataaatctcc cgtgcatatg      780
aaggaatgat tttttgagtt gttgcttagc ttcttcagct tcctcacgag agcgaaatct      840
cctacaagga gccgccaaaa aggtgctcgg taagtcagat agaatgcac tcgggatgca      900
gctgcgttat ttgagctgct cgtcgattgg ctctcgctta gaggcagcca tattgccatt      960
gtatacctgt atccgatagc ttggatcaaa cggatattgc tctcgccctc gatcaaacgg      1020
gccaaacgtc ggataccttg cccacggcag ctttacggat gcaggctgat agatgggtgtg      1080
atgccttctc cttcgtgctc cgcactgaga gcttcgaaga tgctgatggg gctttgctat      1140
gagccgatgt ggaaacctga gcttcgtag acgaatgcaa accaacgaaa gcaataggag      1200
actaaaaaga aaatcggttt catctgttcg tttctccttt tgaaataaaa ctgcgccgaa      1260
aggggtgtgaa acaaaagcaa tctcagaatg cttcgatgat aggcaagaat ttgtctaccg      1320
agaagaagcc cctccgataa gccaccatc tacatccgca cggctaaaga gtctttggca      1380
ttggctgcat tgcaactgcc tccatagaga atggaacaac cttcgcaacc tcttttccat      1440
athtagcggc tatactctta cgaatatgtg atgcactctt tgagcttggg ctgccgtagc      1500
cgtcttaccc gtaccgatgc ccacacaggc tcgtaagcaa ggatcaattt ggcaaagtcg      1560
gtctgatcaa agtaaacagg gcttcttcca cctgacgagc gactacctcg aagtgtctgc      1620
tgcttcgcgc tcttccaaga cttcgccaac acagaaaatg ggggtcagcc attggacaaa      1680
gccaaacttca cttcttccat caggattggg gatgttcac atagtaagca cggcgttcgc      1740
tatgtcctat aatcacatac cgagaccggt actggctacc atagcagcag agacctctcc      1800
ggatatatgca cccactcctt atcggcacag ttttcagctg caactccgat acgtgtggta      1860
tcatggctgc cgcaataact gccaaatgga tgaatggggg tccgataatc agtcacagtt      1920
gatcgtaacg cctttcaaag ctgctccaa ctcctttgcc atgcaagccc ctcttgaggg      1980
gttttTgttca ttttccagt

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(2) INFORMATION FOR SEQ ID NO:1072

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 788 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...788

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1072

```

ttcaggcgaa ggttatggag actgccgaac ccggcatgtc gtgtgccgac tttataaacg      60
ctctgtagag atggccgagg aagcaggggc tgccgataat tcatggggac gaagcagcaa      120
gctaaatttg tgggacatgg cataggatcc agattaatga aatgcctgta ctaatggctc      180
gcagtaaaga gatactacgc ccgggatggg gatagccttt gaacccaaat ttgttcttcc      240
cggatagggg ccgtaggtaa tgagaatagt tttctggtta cggaatccgg tgtaagaaac      300
taacgggtctg ttccgaagag ctgatagatc tattggctgt agcaaacaat aaacattgaa      360
tccaatcatc taacagatta acaacaatg aacgaatcaa acaactctt agtacagttc      420
ttctttttat tatcgtactc ttccggctct atatgccggt cagccacggg aggtcaagcc      480

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agttcgggaac	tgattctgat	gattccccgat	ggtacctctc	tttcggctgt	ttctctcgcc	540
gctggatatca	gcgatacctg	aatccccgacc	gccggcattt	ggctatagtc	catatatatg	600
tggtactgtt	ctgacctatt	cgtcgatgc	cccgatagag	actctgcacc	tactacatcg	660
tgctatatga	caggtatgcc	atccaaacgg	gttttgtgtc	gacttatcct	gtcagttcgg	720
gtgatgcaga	tctgatccgg	tgataaggc	tcgtgcttat	tctcctttgg	ctacttttct	780
ggagcggc						788

(2) INFORMATION FOR SEQ ID NO:1073

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2355 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...2355

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1073

gcctcatcgg	gcgtcgctat	cgccaccgct	acagtcctggg	cgatgccata	ccgtacgtgt	60
tgcccaagcc	aatctggaca	gaaagcaact	cgacttcgac	ccgtaagcta	aacgatcctg	120
cgaaaccatc	catttgcaga	tcctttctcg	ccgaatccgg	tggtcggtgg	atacccaaaa	180
agtaaggcaa	ttttccccga	cctcagtcct	ctgtgctcaa	gccgtttggt	ttagatggcc	240
aagcctctga	caaaactctc	taccacctcc	gatacaaaat	cagcgagagg	gggctactca	300
tcttgcaacg	tttttcggtc	gtaaaattttg	ccgagtatag	ctcgcaaaac	gtggtctgag	360
aatcttttctg	ttttggttcg	agaattttttt	tgccccgaac	caaaacgaaa	tttttttcgc	420
gcgtgttttc	aggatttccg	gaccactttc	ttctgatttg	cggttcgtct	ttttctgacc	480
gatcgcactc	ttaagaatac	caagaagcct	cttcggacta	tatcttgtgt	ggagctcttg	540
aggaggcaat	ggaaaatgaa	gagacaaaag	caccgaaact	tacgtggtca	gaagcaaaat	600
cgtttggcaa	tttcagattt	aatactacct	ttgcaaagca	aaacggattt	ttgtcttttg	660
ctaagaacat	ccggaggccc	attcgttatc	ggttaggacg	caagattttc	attcttgaaa	720
gaggggttcg	actccctatg	ggctacagaa	ttaaaattat	cacaagagaa	ggatatggca	780
aatctatttc	atcagagaag	cgaaattcgt	agacaaatgc	acgcagactg	cacatcgtaa	840
ctatgcccg	acggctcgta	atgcagtgaa	agcgttccgt	gcctgacgga	ccgtactgaa	900
gctgaaaaga	aataccccgt	attggcatcg	agcttgatcg	cttgcccgcc	aagaatatta	960
ttcacaagaa	taaagccgcc	atctgaagtc	aaagctcgct	cgccgcatca	atacattagc	1020
gtaagggaag	ctctctccct	ctgctcgta	ttgtctgcga	agcggagacg	agtgtcagct	1080
cgggtttggc	cattcgctta	tcggtttaga	cgcaagattt	tcattctgaa	agaggggttc	1140
gattccccca	tgggtctac	gcagaacgaa	tagcagtcct	atacgaaggc	tgtgtcaaag	1200
gattaccccc	tttatgacac	agcctagtcg	ttttgctgtc	tatactcaac	tgagaagagg	1260
ccggaatttc	ctctagagag	gtatctccca	tggttcggat	gtctgttcca	ttccattatt	1320
ctcttggttt	ctcatggcag	tacettatca	caattgaaaa	cagcaacact	cgaggaagaa	1380
ttggctcaaa	caaggtttta	ttcggttttt	tgcatagata	aaaaagacag	caatgaagaa	1440
agacattatc	atattgggga	tcgaaagctc	tgtgacgaca	cctctgcagc	cgtggtcagg	1500
aacgaaacta	tgcttagaca	gtgatcgccg	gacaggccgt	acacaaagcc	tacggggggg	1560
tggttcccaa	ctggcatcgc	gtgcgcacga	gcagaacatt	gtcccggtag	tcagcgagct	1620
atcaaacgtg	ccggcattcg	caaagaagaa	attgatgcca	tcgcttccct	cgtggaccgg	1680
gtttgctggg	atcgctcctt	gtaggcacca	gctttccaag	ggattgtctc	tttcattggg	1740
cattccgatg	ctggaagtca	tcatttcatg	cccatgtcct	ggccaacttc	cttcgtgagc	1800
cgggtgagga	gtccagcatc	cctctttccc	attcctgtgc	ttgttggttt	cagggggcaa	1860
cttcagatta	ttctggttcg	ctccccctac	gatatggagg	taataggaca	gcgatcgacg	1920
atgcagccgg	agaggctttc	gacaaatgtg	ccaaggtgat	gggttgggtt	atcccggagg	1980
ccccatcgct	aataagttgg	cttcggaggc	aaccccgatg	ctttccgctt	tgcccgtcct	2040
catgtgtccg	gttacgacat	agcttcagcg	gactcaagac	atcattcctc	tatactctgc	2100
gcgaccacct	ggccgaagat	cccgaattca	tagaaaagaa	caaggccgat	ctgtgccatc	2160
tcttcagcac	acggtcatag	acatcttgat	gaagaaactt	cgccagcggc	caaagatcat	2220

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agcatcaaac aagtggcctt ggccggcggt gtatggccaa taccggactg cgcgatgctt 2280
ttcatgacca tgcccgcgt tatgctggac tgtattcatt cccaaattcg cggggatcca 2340
atagagtcga agttt 2355

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(2) INFORMATION FOR SEQ ID NO:1074

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 637 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...637

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1074

```

accttatgga tggccagtcc gtcagaatta aagaccaaag caaactatgg tatatacgaa 60
tcggctgtaa aaaagccggt cacaaccata ttgatattgt ggcgatagct attttcgggc 120
tattctcact gagtcgtctt tccatcgctt gtatcccaag attgagacga gcaatatcat 180
ggtcgtgacc tcctatccgg agccagtgc tccggacatag agaacaacgt tacgaaggtc 240
ttggaataac gcttaacggg gtttagcaatc tcaagcacat tacttcgaag agtcggagaa 300
tgcttcgctc attacgctcc aattcaatga aggtgtggac atcaagtggc taccaatgat 360
gtgcgcgaca agctcgatgc cgtctccaac ttctgcccga tgatgtgaac aaaccgatga 420
tcttcaagtt cgggtactgac gtattcctat caccatgcta tccgtgcagg ccaaagagag 480
tacgatggcc tgtcgaagat cctcgaagac aaggtcacga atgctctggc acgccttgag 540
gcgtaggtgc ggtgagcatt atgggtactg tgaagcggga aatacaaggt attgcatgcc 600
ggccaaactg gaagcataca acctgaccgt agaagct 637

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(2) INFORMATION FOR SEQ ID NO:1075

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 814 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...814

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1075

```

ccatactggc tgaagattgc gatcgctgca catcatcgta agctaagcag aagcatgaag 60
aacgatggct aagcagtgat gaagatatct gctctgtggg aaggatatca gaagattgtc 120
aaattatttc tttgatgatc ggaataggtt ctgtccgata ttgcaatcaa gcaatatgaa 180
tttgaggagc cacgaactta cttcaattag cggatcacag agcgagtgc aaggaagagt 240

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caaaagcatc	ccggatccga	ttgctttttc	ttataccttt	cctgaaaagt	gggaaaaaga	300
cctgttcaaa	agctggtaga	aaagcattgg	agagacgaac	ttcttttagta	cgagcaccca	360
ctggtgctgg	aaaaacggat	gcagcactct	tggggcttct	catcaaataca	aacacagaaa	420
agcagaccgc	ttgattattg	catgccact	cgttttacaa	caaatagcact	agctctaagc	480
gtatcttcga	cctttcttct	acaggcctgt	atcattccag	tgcattggaca	cagaatttcg	540
tagcaaaata	gacaacgggg	aaatagcttt	agagcaggca	agatactaca	taaccaagct	600
cgcttactac	agacccttat	aacggtatgc	accatagtca	tctcctctct	tcattgactc	660
tttgtgacga	ggaacatcag	accattcttt	tgcactggca	aatgcatgtc	tcggtattga	720
tgaggcagat	ttctagatca	atttacacaa	gctaatatat	tagtattact	agagggtcta	780
aaattggaaa	gtgccgatat	tgctgatgag	tgcc			814

(2) INFORMATION FOR SEQ ID NO:1076

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 601 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1076

cggtttttga	ttagtcttct	gtagccttgg	ccaagaatat	aatagtcggt	atcttttggc	60
ttcaggcaga	tttttgggtg	atagcagacc	tttatcggcg	gtcttgctat	cacctcaat	120
ttgtggcttt	ttctcggttt	ttgtcttatt	cggaaaaaaa	cctttatgtg	tttagtagag	180
tcttctgtag	atacctcgat	ctcatctaca	gtaagctcta	cgtagttggt	ggcgagcaat	240
ctttgtgtgt	cttaagcact	gattccgcaa	agcctcttac	ctcttcgtcc	ttcagccgta	300
ttcgtgcaaa	ggtttcttgg	taagaaggca	tccgagaagt	tcaccagctt	cggatatacg	360
tattcgggct	ggcagttcag	tatcttggag	agttccagtt	gagttcgact	atatagccga	420
aaggattctt	cttttgggtat	atttgaatac	ctctgtgaag	aactgatagt	ttgcttctcc	480
atgcggcacg	gatagtgcct	ccaacgggta	ggatagtgcg	tggacggctc	tactccgcat	540
tccgaagcta	taccggcata	gttgctggcc	atgatcattc	tccagcttcg	agcggattca	600
g						601

(2) INFORMATION FOR SEQ ID NO:1077

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 596 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...596

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1077

ccttacaggc	aagaaagccc	gtatcaaaga	gcgtcgcgta	gctctttctc	taaagactaa	60
tttgcttata	acggttatta	ggggggctta	tagagataat	cctcattccc	taagtattat	120
gcagagaggg	tgtatcgaaa	attgattcgg	tacaccctct	tctctttaac	ccagattggt	180
cattagagat	taacgttaga	atcaaggcat	tacttattac	tttcaaggaa	aaagaattat	240
gtccgataag	catgtatttc	acatcacccg	attggtgaga	tgaaattggg	atgcgatgtg	300
atctctataa	gaaggtaagt	ggcagttatt	aagcagatta	caagaaaaat	ctctaataac	360
ggccattagt	ttttttgaat	gcaatccact	ttttccatta	acataggctc	ttataaactt	420
gaaggattaa	gcctaattta	gctcaccaat	tggttggtga	gacccgggta	acacctctgc	480
ttgcaacaac	tcccagtcct	tcttcaagac	acgctcaata	agcttgagga	gaaaaaagtg	540
gactggtcgt	gcgatagggtg	cttctgnaac	aacagggtat	cgaatcctac	aaagca	596

(2) INFORMATION FOR SEQ ID NO:1078

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 956 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1078

ccatcattgg	ttacagtccc	gcttttaggg	ttaggcatca	atccgcgagg	cctaaaacac	60
gtcccaatgc	accgatttta	cccataatgg	caggcatgtg	atgatgacgt	ctatgtcagt	120
cccaaccagc	ctttattttt	tctatgtttc	gtcaagacct	acatagtcag	caccagcttc	180
tttagcttca	gcttcttata	aggagagcac	aatgccagaa	cgcgatctg	ctttccagtt	240
ccgtgggaag	cgttacaacg	ccacgcacca	tctggttagc	ctttcggggg	tctaacccaa	300
gcgcacatca	atatccacag	atgcatacaa	attggtcgtg	gtgtctcttt	caccaaggcc	360
gatgcctccg	atattgtgta	tgctttcccg	ggtcaatctt	gctaaaggct	aacttctggt	420
tttttgtag	tttgctcatt	tgagtaagat	taaattat	attccgggaa	gtccccttta	480
atcgcgatac	catgcttcga	gcagtaccgg	ctaccatttt	catggcagct	ttgatatacga	540
gcaattcaaa	tcgacaagct	tatcttctgc	gatcgtagct	acttgctcca	tgtgatttct	600
gctaccttct	tacgatttag	ttctgcagaa	ccactctctg	tttgctagct	tcaaggagtt	660
gaatagcaac	aggaggagtt	tttacgtaaa	atcaaaagac	ttatcggcag	agtacgtaat	720
tactacaggc	aatacttgcc	ggctttgtct	tgggttctgg	cattaaattg	cttgcaaaac	780
tcataatggt	atgccctttg	caccaagtgc	aggcccaacg	ggggtgaggg	attgctgcac	840
caccttttat	tgcaatttga	tttgctccagc	aacttcttag	ccttggtcta	aaataaaaaat	900
tcagacacac	actatatcaa	tgcgagagag	aagatccgaa	cacaacctca	tctttc	956

(2) INFORMATION FOR SEQ ID NO:1079

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 929 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...929

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1079

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aggatccccc gatgataagt gtgggacgct cgccctctcc cttggcttcg tcagggcctt      60
gcgaatttca tccgcatcgt tacctgcaat ctctattact tccaacccca tgcacgatat      120
ttcatggctt ccgtcttcgc ttgccactct ttcactgtcg tagaaagctg tacgtcgttc      180
gagtcgtaga acataacaga ttgttcagcc caaggtgtcc ggcgattcgg ccggctcctt      240
gtgatcttcc tectgtattc ctccatcgga aatgtaggca tagatcgttt ggctatcatc      300
cagccgaagc gatgagcgag gaatttggtc gcgatggctg cacgacagca taggtgtggc      360
cttgtcccaa ggggccggat gtgttctcca ctctgtcatg acatctactt cggggtgtcc      420
gggtgtgatg ctgcccattt gcggaatgct ttgaggctcat ccatggagta cttgcccgctc      480
aatgccagct agcatacagc atcggggaca tatgtcccgg atccaagaag aagcgatcgg      540
accggcccat tgcgggttct tccgggtcaaa gatcagatac tcggagaaaag tacgtttaca      600
aagtccgctc cgcccatggc tccgcccggg tgaccgcttt ggctttttcc accattgcag      660
cggccaatac tcgaatattg tccgcacctt gttcatcagc tttttgtcat tcattccttc      720
taattatggt gaggtagatt atatcttaaa ttgcgattgt cctgtgaccg aagacatctt      780
ttccacaaag gtaagaagtt ccgttcagag cacgtgggtt actatattaa ataatgatct      840
ttcggaggtc aagctttgtt cctctcccct taagtgcact gctcaagctt ttgatttcaa      900
aagacaactg gtcggagtcg ggggatcct

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(2) INFORMATION FOR SEQ ID NO:1080

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4375 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1080

```

cggtaaatga aatagaaaca aaacggttaa aagcacatct ttgtttattg gattatcgta      60
cacaaataag aaaattatag atatatatct atcgaaataa gattatcgga ttgacaaatc      120
ggaatttata ttataataaa tcctatccaa aaaatatattt catttatattg gagtatattt      180
gccgatataa ataggccatg agggaaataa cggatattgc tgtagccgaa tctggtgata      240
gtgactcaaa gagcggcttg agactaaaaa tgctaaaagc tggctgaaaa gtgtagcgct      300
tttgccaacg gaataggagg aacgctctat ttcggcgtgg aagtcgcacg cgccggataa      360
ttggtgtaca ggatattcaa ctgacaatca gcaaattaca gagctgattg tggctcgat      420
caccgcgct ccggtttttg atgcatcccc ctgcaacaga aaggaaaaga tattctggct      480
gtcagagtgg ttccggaaaa catactcctt tctactatgt tcacgatcat caccatacac      540
atatatacgt atgggagacg agtctgttcc ggcgaccgat tatcagctaa tgagcttata      600
ctgaaaggaa gaaacgaaac atatgacagt caaataagga gaaactgcgc acagattata      660
gtttttacatt gttggaggcg acatattgca taccttgaat cagcatatgt cagatagcga      720
ctatgtttct ttcggttggc ggtagaagat ggtcgtttga caaacgccgg attgcttttt      780
gccgccaatg tccgttacct gacagcagag tcttctgtac acgctggaat ggggtgcaaag      840
aggatcagtg catgaagatg cgacggatga tgcagaatac agggcaatct gatatacttg      900
ttaaaaagtg ccactgagtt tatttcgcga ataccgcaa aggatggact aaaacagcta      960

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atggaagagt	ggagaaaccc	actatgccga	acgtgcttat	tttgagggag	tggatgaacgc	1020
tcttatccaa	ggacatatga	ttttcgaggg	actgaagttc	atgtggaaat	gtatgacgcc	1080
gttttagttat	ctcatctccc	gggggaatct	atggaggggg	agaattgagc	ccatgagcga	1140
cggctcttat	atttctaaaa	ggcgtaatcc	gatattgctg	acattttcag	ccggctaagg	1200
tatatggagc	gtcgggggag	cgggaaaaga	aaatctttga	agcaacgaag	aatctttatg	1260
gctatgagga	agaaaaaagc	cgtttttcc	tgtgaataaa	cagaatgact	tcttcctgac	1320
gatccgaacg	ttaattatcg	ttctgagttc	gttaccacac	atgacacccat	actgacacca	1380
tacatgacac	catacatgac	accatacatg	ataaaatcgc	ctgttacttt	ccttctgtca	1440
aacgcctcgc	agcagagaag	agatgatgga	tttgtggggt	taagaaaccg	cgatcatttt	1500
cagaagaaat	acctccgtct	ttattagaac	aggaaaagat	cgaaatgacc	attcctgaaa	1560
agccccaagt	aagaaccaga	agtatcgaac	gaaggaggta	gtcaaataac	atatccatct	1620
ctaataatag	cgttcaacaa	attgagtttt	tataagaaat	atcttctgtg	ggatgaaag	1680
aggcggtagc	tcatgtctcg	gattctttcg	tgccgtttat	ttatatcggt	tgcccagcgc	1740
gaaggaggga	cggctggggt	tcgggtttcg	ctgagcggac	gaatagagcg	taagacggcg	1800
gattttttccg	ttcctgtttt	gttgcggctc	ctttcgattc	ggaagaagag	gcttacttca	1860
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gccgtattct	cgggtatccg	catgccttgc	ccggaatccg	agatatggat	aaggaaagctt	1980
accgtacggc	ttttgaggaa	atcatgcgcg	gatagattcc	gggtatttgg	aaaagggtgt	2040
tttatcccg	accttgacct	taagaggggc	gattccggat	tctccgacgt	tttttcttat	2100
tgggagtgct	ccggagggct	tatccccatg	ctttcgtttt	cctttatttt	attccggaaa	2160
gggagtattg	gcgggagcga	gtccggaact	cctgttggtt	tatacaaagg	acgtgtaaag	2220
acgatggctt	tggccgggaa	cagaccgcga	tcttcgaagg	cgagttgctt	aagccgtgga	2280
cacaaaaaga	gataagagag	caagagtggg	cagggactat	atcagggaag	tgcttgagaa	2340
ccactgtcgc	agggtggagat	gtcggagacc	cgtaccttta	tggccgggaa	tatttgccat	2400
tgtgtacgga	ttttacggct	ttgaccggag	acggcttaga	aagcttgctc	aggcgcttca	2460
tcttaccgcg	gctctcggcg	gattcccccg	taagggaagc	tggcgtgtat	ccgggaggtc	2520
gaggtgcatg	aacgcaaat	ttacggagat	atttgggggc	tgtgggtaag	gatgctgcga	2580
gattgtatgt	gaacatcgct	cgatggaatt	gtttccggg	gcattccggc	tttatgtggg	2640
aggaggataa	acggagattc	ggtattcgaa	gacgaatggg	aagagacctc	ggataggcgg	2700
ctactctttt	gaatgtgctt	ggaatacatt	ccgtcggaga	taagcggact	ataaatgata	2760
atgcaagatg	atggattctcg	attattcgga	taaaaaggcg	taagcgtatt	gatggattta	2820
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ccggtacggc	catgttgaat	tatgctcctg	ccgttgccag	gctttttaca	gggggattcc	3060
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attcgacagc	aggaggtatg	gccggtttcg	ttaagtcgta	ttgcagcttg	agagcggaat	3180
tcgatcttcc	gcctcggcat	ggtatgcaa	tcgcggtttg	aatgaggtgt	tgaacatgcc	3240
ctgatgcccc	gcgagagacc	cgtacacatc	aatatgtcgt	tttcgaaccg	ctatacggga	3300
cttctcctcg	atattccgga	aaagagcggg	cgtaacgttc	gtgagggaac	ggcaagaatt	3360
gccggaagag	gtatgggata	tctcgtaaag	cggttttttg	aagctcccag	agtgatgatc	3420
gtcgcgggtt	ttatcctccc	gacgaagacg	tgtccgcccgc	attgcaggat	atatgcaaat	3480
tccccatacg	gttttggtttg	ccgagagtct	ctccaatatc	cgtacggaac	ggggatatgt	3540
acggcagacc	gggtattggc	tgacgcccga	gaagacgatc	gctttatccg	gaactcctta	3600
tttcttttcg	aggctcgttg	atttccgtat	gttgaaaaact	tttctacgga	gggcgaaacc	3660
tgcggagcat	tggggataga	cgagaggttt	ccggctccgg	acactttctg	tgcgcttacc	3720
catctatatg	tacgggagct	tcgggctttt	ggaaggaatt	cgccggacgc	ttgaagacaa	3780
ggcaccggag	tccctttcac	cggaaggaat	ttcctatgcc	ggtcgtggca	gaagataaaa	3840
cggaaggcgc	acctcctgca	ccgtaccttt	aggcggatgc	ggggtggagc	gacctcaagg	3900
ctttcgaagt	gatttttaagg	atattcccca	tgatgctgct	ttgcatgcgc	ctaattccac	3960
gcccgtacgt	atctccaatt	attcgaacac	gcgcattatg	cgggaggaga	atggagcatc	4020
gcggaaccaa	cggaatcgag	ggggccactt	ccacggcaat	gggttttccg	aagtatatcc	4080
cggaaccacc	cttttgatta	cgggagatct	gagtttatgt	acgattccaa	tgctttgtgg	4140
atgccttatg	taaacgggcg	gatacggtaa	tcgtgatgcg	taacggagga	ggggggatat	4200
tccgttttat	tcccggccgc	attctttgaa	ggaattggag	acctgtttcg	agactccgct	4260
cgagttcccg	taagggaaat	ggccggagct	tacggatgga	gatatatgaa	ggcgtttccg	4320
ccgaagaact	ggaaacggtg	ttgccttcgt	ttttcgcac	cgcgacaggc	ggtcc	4375

(2) INFORMATION FOR SEQ ID NO:1081

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 454 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1081

gaggactgat	tcagagaaaa	acagtcctct	aacattattg	tagcatttgc	atttattaca	60
atcaatgtat	aatcattttt	gccaatcac	acttttactg	agagcaaacg	gtatcgctca	120
tacgcatagc	ttttttaatg	acataaaaagg	gatatctatc	gctacatctg	tttcccatct	180
tctaaaatcc	gagtaatccg	aaaagattgt	aatggccttt	ttatgtatat	tctacatcgn	240
ggcatatggt	tcgagctcgc	caaaaatttg	tagaacctat	ttcttcatca	aggtctctat	300
tggattttatc	aaccaattcc	gctttgaaca	tctctctcaa	gcgtccgcca	ttacgggctt	360
cgctttcttg	tggaagaaaa	tactgtctng	atagcattat	accttttggt	ttaagccaat	420
tggaacctna	aaatttagcc	tggcagaaat	acna			454

(2) INFORMATION FOR SEQ ID NO:1082

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 454 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1082

agttcccgaa	tccgagttca	tccatcttgg	ccaccatagc	tttggcacgc	gcgcagcctc	60
gatacgtccc	tgcggaagaa	gagccaactg	gctcacctgg	ccgatacgaa	gagcatagcc	120
gaaccgttct	tgcatgctgc	cgcacaactc	cacatccgat	acaagccgct	gcatccatgg	180
cctcatccgc	attcttttgg	aaatggggat	agccgttggc	atcggggata	ccccccgtat	240
tgacgaaacg	aatccgccgg	actgaatgat	cttgtcataa	gccgagcgat	ccacatgagg	300
tctctgatca	caggggaagcc	ggccgagcgc	caaggctcta	tcggatcgta	tcaccatcat	360
cgaaacgacg	catgtgcagc	tgacaagtgg	tgtgctatcg	taccggccccg	tggggatgac	420
cattgatgta	gagtgagcac	aaccgcaaat	acct			454

(2) INFORMATION FOR SEQ ID NO:1083

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 881 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1083

attggctttc	agggctctcta	ataggagcct	tgccgaatcg	accntgctca	acggatgacc	60
tctttgcgct	cactcgtcca	tggttatcg	gcaactccgc	tcctgccaga	tggatgatat	120
gcctcactcc	ttgcagtgct	tcgacctgat	tcgccgtttg	ggaacgtccc	attcatattc	180
gttttcgttt	cgtttgggcg	cgtaaaaatg	cgatatggagt	aaccgtttcg	cacaagttct	240
tccgaagtgc	ccgtgcaacc	atcccatttg	cccggtaatc	aaaacaacgt	cttttgcata	300
aagaaaccca	caaaattcaa	tccgctaaga	caccgaaaca	aattataaaa	tgggatgcac	360
aagaaagtgt	acctcaatgg	aaaaatacgc	acaaaaaagt	tttcaacaac	gaagcggagt	420
ttggaatgat	tctaaataag	ctcctaaaga	gagggggcaa	tcggagtaaa	aaagacaaga	480
aaacggactt	tgcaagtcca	aatccgcttt	tcggaagatc	ttgaaacgat	ttatatataa	540
ccattttcaa	tttatatata	gattgtttta	gatttatata	taaaacgttt	caataaatat	600
atagatcata	aatgatttat	acataaattg	caggataaaa	aggccgattc	gggaggtgat	660
aaaacaaatg	cacccaccga	gtttaaagca	aactcagtg	gtacccggtc	tcttgggtgg	720
attaccgaag	gggtatccac	cottatacat	cataagtcta	tacgtctctt	ttctctaacg	780
cagtagtgga	tgtgaataaa	anggagcgac	tgtagcagtc	gtatcggcag	atgttggagg	840
tcataatata	ggtgtgcata	tcaatttagc	agtttattaa	t		881

(2) INFORMATION FOR SEQ ID NO:1084

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 576 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1084

gggacattcg	gtatgtatat	cccaagaaat	cgttcaagta	tgaaaaagga	aaactccgac	60
tatggatgat	ctgggtggaag	ctttccttac	agcttcgtcc	agagtggagc	caactcgggg	120
ctgggggatg	acaagaacgc	caatcacacc	tgattacata	tgccaaaaaa	gaagagaacg	180
gtacgaacac	gctgaatacc	gctgggccaa	ttatgacaag	attcataaca	aagatttgtg	240
gagcgacat	ttacgtatac	atcatctgcc	aatgctctct	acacacctca	agtaacatca	300
atccgaccaa	gggtctcggtg	tgctgggtcat	gggtggaata	tctccgggca	aacggatcgt	360
ttggtctgat	cgcagtggaac	ccatgccaac	gggtagaaga	catcgtaatg	caagaaggca	420
gcatgaagct	ctacccgaat	cggctcaaga	atatgctgtg	attagcctgc	cgacggcagc	480
aaactgcaag	ctgttggtta	cgatatgcag	ggcagaagta	gtcgtctgagc	ttcttcttcg	540
cacgaataca	ggctgaacgt	gcagcacttg	gctaag			576

(2) INFORMATION FOR SEQ ID NO:1085

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2189 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1085

cgtccatcat	gccaaagagca	gcagaaacaa	cgatacagaa	gcccgtcaag	agagcaacat	60
attggggagt	gaagatttta	gctttttcat	ttgttcttcc	tccaaaatgt	ttaggtttca	120
tataagtgtt	gatcagaggt	gtcatacgtt	cataattagg	atggcgaatg	acattccttc	180
cggataagcc	ccgaattacg	gatcacgacg	gtcagcaaac	cgatcagaca	gccgtaaagg	240
atctgccgga	cttgggtcatc	ggcgaagtca	catagtccgt	ggccatgaag	atgggtccgag	300
catcataccg	ccggagaaca	ggtggaacca	cggagtggcc	gggaggatgt	ggggctggcc	360
aagtgcagaa	tacctgccag	tacgatcaca	gagcgaagat	agacacgggg	atatgccacg	420
tgataatctt	cttgtacagc	aatagaccaa	tccgagaagc	aatgcgatag	cactgacttc	480
acccaaagaa	ctgcttcacc	gataaacatg	tgcaggtctg	tggggatatt	agccaaagcg	540
aggtgtcgcc	gctcattgct	gctttcatca	ggccgagagg	cgtagcacgg	tctcggcatc	600
cagataggaa	gtcatctgtc	cttcggtagg	ccagagatca	tctgggcagg	gaaagagatc	660
aggaggaata	cacgaccgac	caaagcgggt	tgaagatggt	gttccccaag	ccgccgaagg	720
acatcttgcc	caatggatag	ctactactgc	accgatgata	atgatccaaa	cgggcagggt	780
gctcgcaggt	tgaaagccag	caatacgccg	gtcaagatag	ctgagccgtc	catatggtag	840
gctccttgcc	caacatatat	ttgctgatca	ggtattccac	gagcaacaag	taagaacgga	900
tactgccggt	acgatcaccg	caccgattcc	aactgatata	ccgacatggc	caaggcaggc	960
aagagggcaa	tcagcacacc	tacatatctt	ttttgatgct	gtctccgctg	tggatgtgctg	1020
gtgaaggaga	atgataattt	tattttccat	cgcttatttc	ctttcttatt	gcttacgtct	1080
ctttggatac	ccatcacagt	cttcttggct	tggcgatat	aatccagaga	ggacggttgg	1140
ccggacaggt	gaagctgcac	gaaccgcatt	cgatacgtca	accacgttgc	ctttttccgc	1200
tgtttcccg	ctcttatata	aggtgcgcgc	ataaggaaag	ccggattgag	tcccatcgga	1260
cacactccga	cgcattggcg	catcggatac	agtcgcgcac	aggcttgcca	actgcctctt	1320
ctcatcgaga	atcaatactc	cggagctgcc	tttggtcaca	ggcacatccg	gtacagcaga	1380
gcgcgtccca	tcategggacc	tccgcccgat	atcttgcccg	tttctccggc	aagccacctg	1440
ctgcttcgat	caaagccgca	ataggagtac	tatacgaacg	aggaggttag	acggacgaga	1500
cagttttttt	cctgtaacct	cacgatgcgc	tcgaccagag	gcttggtctt	ctgtactgct	1560
tcgtacacgc	gaataccgta	cccacgtttt	gtactacggc	acctgtgctg	ataggcaggc	1620
accgcttttt	acctgcttgc	ggatcactgc	atcgatcagc	tgcttccacc	gccttgagga	1680
tattgcacct	tcaacggcat	tacctctatg	cccggtatgc	agtggccagt	ttggtgaggt	1740
gagcaatagc	atctttctta	ttatctcaac	tccgatgacg	gccttgttta	cctgaatggc	1800
tttcatcagg	atatcacgcc	gatcatgata	tcttcgccgt	gctccagcat	aaggacatgg	1860
tcctcgtcag	ataaggctcg	cactctacgg	cgttgatgat	caggatctca	gtttgttgcc	1920
cggaggaggg	gacagcttca	catgggtagg	gaaggtagca	cgccaagacc	cacaataaccg	1980
ggctgcagaa	attttggcta	cgatttcttt	gcattccagat	tgcatctctt	gacgatggct	2040
ggtgagcgat	cgatgcccct	tcccattcgt	caccttctac	gctaataaag	actgcgggct	2100
tgggataccg	cttgagtcgt	atacgttatc	gatcttcagc	accttaccgg	acacagttag	2160
tggatattag	ctgatacgaa	tcctccggc				2189

(2) INFORMATION FOR SEQ ID NO:1086

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1717 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1717

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1086

aggaatagga	tcgaagatca	acaattatcc	tatgtcctcg	aaagtatcgc	acagagcgag	60
acggacgctt	gatcgcaacta	atcgtgccgg	acagacagcg	atagagcata	aagggatctc	120
tccggatcag	gcatgggctt	atatcgaagg	agccgagccg	aactgaacgg	gcaagtgggt	180
gcatacgaga	aaataaggcc	tttgtccgcc	atgacgaaga	gttcgagaag	acacccaaac	240
acagctcaaa	cgtttccctc	atacttgatt	gcgcaagatc	gggtgcccc	gtcttaaaag	300
gaatagccat	gcgtaaggct	tccggataaa	agggctcaat	gcaacagcat	ttggtcgttt	360
tttttgggtg	tacaaaaaga	aactgtatat	ttcgccgtta	tagaacatta	attacacttt	420
taaccccaaa	aggaaatgaa	gaatttggtg	cttttgagc	tgtaatcgca	gctgtatcat	480
tcgcttcttg	aactctcagg	ctaagactga	agaagctgct	gactctacgg	ctatggattt	540
gccacttttg	tagaagatgc	agctcctgta	gttgatacgg	ctgctatgag	atcgattctg	600
ctgcaatgaa	ggctgaagaa	gctactgaac	aagccgcaa	taatccaacg	gctatttagc	660
atcccccgaa	tcatttgtgg	ggtaagtata	agtctgactt	caaaagagtc	ggacttatgt	720
ctctttttca	gttataactt	ctcgcccttag	cgagctgttg	caacaaaaaa	gggtattcgt	780
tatcgtcttt	cagaggcttt	aacgaatacc	cttttttgat	actgttgctg	atgaggctgt	840
gtgtgctgag	caggctgtta	tctcatgttc	ttgagttgct	gcggagttcc	tgtctggcaa	900
gaaatatacg	gctcttcacc	gtgccgagag	gattccaaga	gtctcggata	tttcattgta	960
tttatatccg	ctcacgtaca	ggagaatggc	tgcttgagag	tctcattcag	cgatgcaatg	1020
gccgccgttt	ctctttgatg	gtcatagtgc	catcgggcgt	atcctctcct	ccctcattag	1080
gagaggtaca	ttgtacggat	cgctgttggt	atcgataacc	gtttgtggcg	aaccaactta	1140
tgatagttgt	tgatgaagat	atctcgcatg	acagtggcac	ccagcctttg	aagttgacat	1200
tatcaacgaa	cttgtcctcg	ttatgagcac	acggagagtt	gtatcttgga	gcaaatcctc	1260
tgcatcatcc	cgatggcagt	cagagtcagg	gcaaaattgc	gcatattgtc	ttgcagactc	1320
agagtttttc	gcgaaattgc	acactattca	taataagctg	tttctttggt	gtgttgaagc	1380
caatggttgg	aagattcgtt	ccctcctgcc	acagacacaa	aataatcgaa	taggtgagaa	1440
accctaataa	acagcgtatt	aagcataata	acggcatcaa	tgacatgaaa	agaaaccatc	1500
ttcagaaaag	gcggcaaccg	ctcgcaaagg	gtttgtggat	aagctcccga	ccaccctggc	1560
ggacatatgt	actatgcctc	ctactatcaa	gaaaatgctc	tggtgaacaa	ggtgctgaat	1620
gctgcaggct	aatcggccgc	ttcggtagcg	gacaagtgc	gactcttatt	atatgctaca	1680
ggcgggggag	ataacaatga	aagaaaaact	gtcctctg			1717

(2) INFORMATION FOR SEQ ID NO:1087

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 982 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...982

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1087

cgctaaaaat	cccgtaaccg	aaaactccgg	ttacgggatt	ttatttggtt	ttagaaagag	60
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gtgggacttt	caagtgtagg	tttcagtagc	aaatacctga	gtgaccggcc	gtaggtgcgg	120
atctcaatgc	gcttaccgaa	catgacagat	cgccatcgag	gtgcattacg	ccctctgtct	180
cacgctcaat	gatcagtttt	cggccttata	gggtgtccaga	ttggagttgc	tgttgatacg	240
cttggaaga	gttgtaaagc	caattgtgga	gcttccaatg	gattgaaagg	acggtaataa	300
ctacatccat	tttaccatcc	tccaaatccg	ctaattggagc	gattaaggcg	ttattgccat	360
actggggcgc	attggcacca	agtgacgagg	aagctttctc	ctcaaaggat	ttgccgtcta	420
tcgtcagttt	ggatccttcg	gtcgttttgg	aggtaactct	cgatcatggt	tcgcgcataa	480
gtgatagggc	tcgactaccc	gcttgggcca	atttcttgct	aacctcggca	tcgaatccca	540
tcgcaggtg	caaaagaaa	ggcgactatc	cgcttcacag	cagtcgatgt	gcgaacatgt	600
ccggctctga	tcacttcgag	agctttcccg	acgggtgatg	cagcttgagg	gcacgtgcca	660
acccgttgcc	tgatcctttc	gggacgtacc	cagcactaca	tcggtgtagc	gaaggctttg	720
ggctatctcg	ttcacgttcc	atcgctctct	actgcaatga	cgcagtcgta	atgcttctcc	780
actgttgtgc	tgccaatcca	cgtgcatggc	cagcacgttg	cgaatagggt	ataagagttc	840
gtgaggatca	tgggcgaata	catcggctat	aaggctcggg	atttgctttt	cgatccgatg	900
cccgatatgg	nattgataat	ggctagaatc	tcatagctat	tcangannta	atcttgtctg	960
cctaattggtg	tgtttccatt	tc				982

(2) INFORMATION FOR SEQ ID NO:1088

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1088

aaatacgaat	tgatactccg	gtacgtagtc	ttttcggctg	attgtcgctg	ggcacatctg	60
gcacacctct	tcacagacg	actgaatctc	tctgcgagtc	gcccgggtta	attgaagtcg	120
taaccgtata	tatccagatt	tactgtgggt	gtccgccccat	accgccaccg	cttcggccccg	180
gagtaacctt	ataacttgaa	tctcaggata	atcatccagc	atggtacgta	tctggtcggc	240
cacttgttca	tggagcggtt	tctctcggtg	cgcccggtaa	gaccgatatg	gaaatgatga	300
tattcgtagc	attgtcctgc	atggcggcaa	acatgctgga	agctcggcct	gaccgacact	360
aaagctcgtt	ctgtcgattt	ccggtatttc	ttctcccaac	tgctgatcat	acgaagagca	420
aaggctcgtg	gcagattgac	tccgtgccca	ccggatattc	tgctgaatt	ggatatagcc	480
attgtcggac	gaggaagaa	ttcgggttga	c			511

(2) INFORMATION FOR SEQ ID NO:1089

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2016 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2016

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1089

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gttcgccttc cggcagattc tttgtggtgg agcaggcacc tgtcagtaga caaaaaggat      60
ggggagggaat acttgccgta atactttcat cggatttctat cgctttgtcg gaatgatatc    120
cgtctgcacg gataccggct cctcttcggt ttgagagctt ctgctttcga cactatggtt    180
ttcgtctctt tcttctgccc aaacggaaca gatcggacaa gcgcgccaac tttcgactga    240
tcacaagccg ataccggtct ccgttatctc tccttcgagc agattttcat tgttttcttg    300
tggaagagtt tgaggtgctt tgctcctgat ttgtccagac ggtctccacg gatacgttgt    360
ccaccaaagt cctttcctta ttggtcggca catggagccg gaagcgacag atcctccgat    420
cacgacacgg atcctgttgt ctagaactgt ttgctgaagc tgtacgtgaa gtccgtatat    480
gtaccgccc atcgggtgcc tctgtacttt ccataccgat gttcagtcg gagccatcga    540
taccttgccc aaagcactgt tgatcattcc ctgagcatag ctgctgaggc attgtcaaaag    600
ttgaacccac tcgattgcga agccaaataa gagcctgtgc caagagtccg atggcctgct    660
ttgaacgctc ttccggcccc atacttgacg ttggggttgg atagagaagt cctccggtgc    720
ttcgacatca aacacaaatc catattcttg agcgtttctt tgacgatgat accaacatcg    780
aaatcacctt tctcgacgtc ttgctaccgc tctccatcac atcggcacgt actgctgcac    840
tgctttgaag ttgacgtaag gctcttgctc attgccgctc catgtacgta gctcgatggg    900
tcgatagtga agacctgctt acccacgacg ggagcgtata gcgcatgggtg ccgccaccac    960
tcatactgta ccgtccggtc aactcatttc cccgtaagcc ggcatagtga aagtcatgtc   1020
tctctctctt gcaactccag atagtcttga tgtccggccg agagatcgac acccaactta   1080
caaccggatc aatatgaatc cgaacaagca tattcatgcc accgaagatg ctctttcctt   1140
ttccatctca ccctgcgacg ggatcatgat cgtatcgaaa agtccatgaa attcaccaca   1200
tcgcccattc gactttccgt ttccaatctg caccagtata cacatacgtg catgaagtgc   1260
caccgtgaat atccgagagc ccgaaatcgc aagtgccttg agaggaccgc gaagggaaag   1320
atcgtggagg caatcagttt gccgtacagc aagtcgccct gatttctttt gcgtccaaca   1380
cggtcattct atctgccagc atcttcagat tggctgtcat gctctggctc ctgtcaggat   1440
tactttctca ttaagattaa gaccgtcttg gccttttctt gggcgcgtat ctgataattg   1500
tcgaaaacca atttgtgaca tcgaagacca gtggcttgtc cgaaaaatag aatgtattgc   1560
cgatcatcgc gaatagaccg atgcatcccg catattcagt tgaccatcga tcagaggcta   1620
tccgttttac cggcgatagc aagttttccc tcgatgaaac cggagaggaa gctctttccg   1680
ctccgataaa tggattggcg atggcgagcg ggaatcgtta aggatggcag ccatatcgag   1740
attgtttctc cggatgcctc catgtagatg ccatcgagat tgagggcagc atttccattg   1800
tagcttatct ctgtgtcagc tagtgcgaaat gatcgttacg gggttcatag aacagagagg   1860
atcaatgttg ccgatagact tgccttcaaa ttcgaactca ttgacagaga gtctccggta   1920
atcgtagtga tacctgtctc tccccccgta cgggatagtc tgcataagcg aaaaatctgc   1980
cggctatatt aggaagagga gacattccga cgtatt                                2016

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(2) INFORMATION FOR SEQ ID NO:1090

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 507 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1090

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cgcaggacga agtcgttctg attcagcttc catgccagga agagggtgta gtcaccttcg      60
caaattcggc cggctggagt cgcaacgggc ctatcaccgc cacgaatgcg agccttttat    120

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atccggagct	atcagtatgg	tcagagcaaa	agcccccaaca	tggcggcata	gaagacggga	180
gccagcgact	cgaaaaaatcc	gtctccatga	gcagaacccat	aaagcctatc	accaccgcga	240
gaccgtccac	aggagctgca	tcatcggacg	accgcccattc	atgaaaaggt	gggaatgtcg	300
aagtcgtaac	ttgctccgca	gacagcaaac	caaccggcca	cgagagcagc	agatacagaa	360
tgatgggtaa	accaatcgat	ccgtccctta	tatcgncttc	gatctctctt	aaaagacatt	420
gctgtagtga	attgcagtgt	tgacatcttc	gtggccacgg	cttcgncctt	cggagacagg	480
ttgccttcgc	gagataatac	ttcatca				507

(2) INFORMATION FOR SEQ ID NO:1091

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1942 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1942

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1091

ctgtgctaca	gcagcagtat	ggcctgatca	ccctgcagat	gggcttgggt	cggtggcata	60
tccggtcaga	atggatgtag	cagatctggt	cgatcatatcc	tgacgatatt	cacactcagc	120
tacttagctg	cctattatcc	tgccacact	tcataatcg	cagactgaaa	aatagctgac	180
gaaaggcctc	attcgaaatg	aggacatgt	gcaaaagctt	tggaataagg	tgtttgcgta	240
tatcaagttc	gtatctttgt	agcaaaggag	tgccggctat	gccgattaga	tgtagcaaaa	300
cgaactcggg	gaaagtacac	gatgacagac	agtatagtta	ttaccctacc	tacaatgagc	360
gggagaacgt	ggccaaaatg	atagaaacgg	tctcgctcta	cccaaaactt	tcgatattct	420
gataatcgac	gatggatcgc	cgacggaacg	gctgcatcg	tcaaagagaa	acaggccatc	480
tatcccgaaa	acttcattcg	gtcgagagac	aaggcaaat	gggtctgggt	acggcctact	540
agccggattc	aaatggagca	tcgcgcgagg	gtatgactat	atattcgaat	ggactgcgat	600
ttcagccacc	cggtagacaa	gttgatcgat	ctatacatgc	ctgcgcggga	ggagaagccg	660
atgtagcgat	cggctcgcgc	tatgtacggg	cggaggcgctc	aaggactggc	ctaaaagtcg	720
cgtatggatg	agctatacgc	atccgtatat	gtgcgtctcg	tgaccttgat	gaatatatgc	780
gacagactgc	cggattttgt	tgctaccgcc	gcgaagttct	tgaaaccatt	gattttgattc	840
ggtacatttc	aagggtacg	ctttccaaat	cgagatgaaa	taacggccta	ttgtctcgga	900
tttcgcctga	aagagatacc	catcactttc	gcaatcgtgt	tttggggaacg	tcgaaaatga	960
acacttctat	tttcggtgaa	cttttacggg	cgtgatcaag	ctacgctact	ggcacttatt	1020
caaaggattc	ccaaaagaaa	atagtagcaa	agagatgaaa	attcttcttc	gcaacgcatt	1080
atcaccaacg	agggaataac	cttccccggg	tcggtgatga	ttgatgggca	tttatctccc	1140
gtattatcga	aggagagcta	cccgcggatg	acaatcctcc	gccgatgaag	tcatagagtg	1200
tagcggctcg	aggctatttc	ccggagtata	gacgaccaag	ttcattttccg	cgagccggga	1260
ctgacgcaca	aagcaccatc	gcctctgaaa	gccgggcagc	agtagcgggc	ggagtcatct	1320
cgttatggat	atgcccaata	cgaatcctcc	taccacaatg	tgggagcgac	tgtaggagaaa	1380
aggcagatcg	gtgcagacac	ggcatgggcc	aactacggct	tttcttcggg	ggcacgaatg	1440
acaacatcga	tgagatcaaa	cgggtggaca	gcatctggta	cccggtctga	agctattcct	1500
cggttcatct	accggcaatt	gcttgtggac	aataaggaaa	cgctggagaa	aatattcgga	1560
gaatgcgact	gtcatcgcc	acgcactgtg	aaaaagagga	aatcatccga	gccaacaaga	1620
gcactacaaa	gccaaatagc	ggaatgattt	ggacatacat	ttccatctct	catccgtagt	1680
gaagaggctt	gttaccgctc	atcggcagaa	gcggtgagct	ggcgcgagag	atgaatgcc	1740
gtctgcacat	cctgcatcta	tcgaagagaa	agaactgagt	ctcttcgcga	acgatatacc	1800
cacagcacia	aaggaatcac	gtcgggaagtc	tgtgtacacc	atttgtgggt	cagcgatacc	1860
gatacggcag	acttggcaac	aggatcaaat	ggaatccggc	catcaaaaaa	gatcggatag	1920
ggaagccctt	cgtgcagccg	tg				1942

(2) INFORMATION FOR SEQ ID NO:1092

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 597 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...597
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1092

tcgcgggtag	ccttggtcgt	tttgacatcg	ggaaagctga	cggcataaaa	gccgttttac	60
cgctcgggaga	caaggccatt	tcgctcacc	gcgacaggtc	atgaatagtt	ccggcggtcaa	120
atgctctccg	gtattcggtc	cggctgaggg	gtcatagcag	ccgaaccaat	gatgcttgca	180
gccatcatcg	aaaagatttt	ttgttcattg	tggtgattta	ttactgtatt	gcgtttttatt	240
gtggacgaaa	atacgaaaga	aactcgttat	cccctctttt	aacgagagtt	gaattatagg	300
agaacaagg	ttgtcggata	aaagtgtacc	gcccttgaat	gaagcatcga	tgcaatcgct	360
atcgggtcga	taggcaagac	tcaatatgct	atgcttctgg	catacgaata	tcttcacgta	420
aatccttcat	tacagtacgt	ttgaagaata	ttcatttttt	taccggacag	caataaaaag	480
aatggatcg	tctcagccgg	aaaaagtttt	tctgcagtag	agaaaaagtt	gaaagctatc	540
tgcaatcttt	atcaaagggt	tcggatatat	aaacgaagct	ttcggatagt	atccaag	597

(2) INFORMATION FOR SEQ ID NO:1093

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 722 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...722
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1093

ttttctctga	taaacgatac	gaacttgggc	gatgtcggac	gctatcgtac	aataagaaac	60
tcaatttgaa	tattgatcct	gatatcaaa	tgcttgacaa	tgaagatatt	attgagatca	120
tcaagtatct	tattgagtta	gtaaattcaa	ggcatcagta	gatgatatag	accacttgct	180
gaaccgtcgt	gttcggctgt	cggagagcag	ctttacaacc	aatttggtat	tggtttggcc	240
cgtatgccag	gacagtacgc	gatcgaatga	atgttcgcga	taatgaagtt	ttcaacctat	300
cgatttggtc	aatgctaaga	ctatttcctc	cgttgtgaat	tcttcttttg	caccaatgcc	360
ttgtcgcagt	tcattggatca	gacaaaccca	ttgctgaaat	aacgcataag	cgacgtctgt	420
cggcattggg	ccccggaggt	catcgcgcca	acgggccggc	tttgaagtgc	gagacgttca	480
ctacacgcac	acggtcgtct	atgccctatt	gaaacacctg	aaggacctaa	tatcgggtcta	540
tctcctccct	ctgcgtatac	gccaaaatca	gtgatttggg	ttttattaaa	caccataccg	600
ggaagttaaag	aacggcaaag	tagatttctc	cgacaatgac	tgaaatacta	cacggcgaaa	660

gaagaggaag agaagaccgt agcacagga aatgcgcctc ttgacgaaaa tggtcgattt 720
gt 722

(2) INFORMATION FOR SEQ ID NO:1094

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3802 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...3802

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1094

acgttgagca	cgtgtcctg	ttcttcgcag	gcttcatacg	gtttcgcgcg	gcgtttgtat	60
acattctcca	cgtcccgatg	gcacgtccca	ccagcgacga	tggcgatagc	catacctccg	120
agactcatcg	tattgatggg	cagtccctca	gtttgagtgt	caaaaaggat	gcaaccagcg	180
aaaggggaat	ggtgacagcg	aaatgattcg	tggcacgagc	attcatcagg	aaaatgaata	240
atacgtgacg	acggaatatg	cctccttcgt	acagagcttt	tcgtacgttg	ctgaagaatt	300
ttcgaatgaa	cgctcttgac	ggaatatgtc	tgtactcact	ttccatcgga	ggggagagcc	360
ttttgcagat	cggccagaga	gcgatccaac	cttcggtcag	ctccagtgtg	ctcgtcgcgcg	420
gctgtttggg	gatgggtcacg	atacggcaga	ttgtcctcgc	tcggaagcaa	ggcccaactt	480
cgggtgcctta	tgcccaccct	tacctctgcc	acgctttcga	gcatgatggg	aatatcatca	540
gactttttac	cagtgtctta	cccaatgcgg	cagcatcggt	cgtggagaga	gtccgcaaat	600
gatatatctg	ttgccgtatt	catacagtag	gccacccatg	cattgcgggt	catttggtcg	660
acggcagcac	gtacttcggc	cagcgtatac	cgtagtgtct	catcctttcg	ggattgagca	720
gtatctgata	ttcctgatgt	cgctcccgag	tactgtcacc	tgtgccacac	ctccgatcga	780
gagcagcgcg	gacggatcgt	ccagtcggcc	aaagtagcga	ggtcctggag	agagtgcgtg	840
cggccgtaag	tccgataatc	atgacttcgc	cgaggatgga	ggttgggggc	cgagcgtagg	900
tttgcccaca	ttgtccggca	gacgggcacc	gccacggcca	gcttttccga	cacgatctga	960
cgagcacgat	aaatatccgt	ccccagtcga	attccaccca	aacgatagag	aagcccgtag	1020
tggaagacgg	cgcacgcgac	gcacgtcggg	agctccattg	acggccgtct	cgacggggag	1080
gttacgagcg	gttccacttc	ctcgggtgcc	ataccggtag	cctccgtatc	actacgacgg	1140
taggagcgtt	caagtcaggg	aatacgtcca	cctccaattg	gaggccgtat	aggtgccgac	1200
cagcatcagc	agtagcgatg	ctaccatatt	gtcagccggg	tgttcagaga	gaaccgcatg	1260
atcttgttca	gcataatcga	tatcctctct	ctttagttag	tatgaccttc	aggcattacg	1320
gacaagtagc	ggccagtttc	acctgatata	ctccatgagt	cacaacattg	tcccggcttt	1380
cagtccggac	aggattcgca	cacgacgtcc	gttgcctctg	cgagggtaac	ctcttggttc	1440
tgatactcct	cttcggccaa	ccgcagatag	cgaagtgcga	tccctgctct	tcggtaatgg	1500
ccgatacggg	aacggagaga	cttcttccgt	agtattggag	agcagatata	cagtgcgaa	1560
agagccggta	cgacatcgcc	cacattgtcg	aattcgaatg	taacggggat	gtaggatact	1620
gtgtggatgc	acgcccgaac	gagagcagcc	ttccgttcag	atcggaagct	cgtagagctt	1680
gttgtcgtat	gaagtctgga	agttggcacc	ggagaattgc	ggacattctt	gaaatggctc	1740
tccgatacct	ccgcccgtag	ctgcaccggc	ggttttgtga	cacggtggct	atgggttggc	1800
ctacggatac	gtatgcctct	ggttgacctt	gcggtttttg	atatatccgc	tcataggaga	1860
cgacgcgtga	cccctcccg	accggtgcgc	gatgtttggg	cttcgtatat	gtcttggtcg	1920
tctgatagtc	cctgcaagtc	tgttcgtatt	ccttggttcga	atgatctgat	cttttaccag	1980
cttttcagcc	cgccgggtgt	ccttttgagc	gattcgtaag	cgatctttgc	cttggttacg	2040
ggatctccat	ccggcagatt	ttggcagaga	tgcgtacgat	gcactctcct	gctcgtacgg	2100
aggctcctct	gtaaaaggccg	aaccggcaaa	cgaacgatg	ccgttggccg	tagctgtatg	2160
gtggcttcat	cgctttgggc	ggagaggatc	tgtccgcttg	ttttgtcaca	tagttgaaag	2220
aggcaggtgc	cacttctctc	acctgcaatc	ctacgcttca	gcctgccggc	atgagaagtg	2280
aatctcattg	gccgatgcgg	atttttctct	gctttatctc	catcatggtc	gtaatcttcc	2340
tgatgttcgt	gttttagctcc	gctcccgaact	gaggggctgc	attgcttgag	ttgcatgcgc	2400
taggattgcg	gcggcaacga	tatatagcag	tgacaagtat	ggtttcatct	tatgtttggt	2460

tttctgttg	ctgtaaaatt	tttgatacga	taaggagtaa	caatcgtctg	tgcctcaaag	2520
cccttcagga	cagaggagaa	gatgttcgcg	agcgattggt	ttgttctttt	cgagatagaa	2580
aaaccaagag	gatgatccct	tcacgatcct	gctctcctgt	gtacggaaaa	aggcacgaat	2640
atgcttctga	aaatgcggtc	tgagaaaaaa	ttttttctcg	aaccggaaaag	aaaattttac	2700
gctcgtaaac	gaaaaatttt	tggcacgtgt	tttcgaattt	ttacaaccgc	aatttgatga	2760
tttctggttc	gtgtttgttt	ggcggtatct	cccgttccgt	ccgaaaagga	tgggtgctta	2820
gcctgaggcg	agaggtcgcg	tgagtatggc	acatacacga	tcgcttcaga	tgctgaaagc	2880
acacagcacg	aatctgccct	acgacagcct	caaaagaaaag	aaacgggggac	taatgggaac	2940
atccttctgt	cgcgcggaag	aatgcgcaag	cagattcagg	aaaagatgaa	ggaggggctc	3000
gcaagccatg	ggatgggtctt	gcttcggagg	gtgtataaag	acgagatatt	ctccgtattc	3060
gggatcggcc	gaaagatcat	cggtcgggtg	agcaatagat	cggctacggc	aaagagaata	3120
gggaatacat	ggatgtatgg	ggatcgtggc	actcttcgca	gagagaatat	ctgtgcttga	3180
gtcgagttcc	gcaccggaca	ggtagaaggt	tttggctacg	caggtcgggt	cgcttgagtg	3240
tgtcttttgt	ccgcaggggc	gttctcatga	caatgttttg	ccagagacat	gccatacctt	3300
tgttgtgatg	atgatggggc	ataataccga	tgtcagcacg	acaagggagg	ccaagcctat	3360
gaagaatatg	gagagcttct	tctcacaagc	gatgcggttt	tggaaacaaa	ataagagttc	3420
cttcttatat	aagtgttttt	ttgaccgatt	tccgtcctaa	tcgcgaactt	gtctgaacgt	3480
gtacccagat	tgtcgataat	atccgatgct	atcagactct	cctgactaag	cgcccgcat	3540
agatgtctcc	ggccaaaccg	tggatataat	tgccgagaca	caggctgaag	caggaagata	3600
gcctgacccc	aataggcccg	taatgagccc	atgaggacat	cgccgcttcc	tctgtcgc	3660
atgccggggg	tgcctatttg	ttgaatacga	ccatgccgcc	gggcatacag	gttgactga	3720
atgccctttc	aggactacat	agacatgatg	atgacaggcg	aggaatcggg	cttgccgcagc	3780
cgttcatagt	cgtattgca	at				3802

(2) INFORMATION FOR SEQ ID NO:1095

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 659 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...659

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1095

gaccgctcct	tcgaagccct	cggacagggc	aacctcgagc	tggccgagca	gcactccgtc	60
aggccatcaa	agcctatccc	gacttgccct	ccggctatcc	ctgatgaaca	acctcggtgc	120
catccagcag	agacagggca	agccggagaa	gcgctgctca	cctacagcgc	agccctgcaa	180
aagctccctg	acgacagctc	ctgcgcacga	acagagccat	gctcctgacc	gaaatgggac	240
gaacgacgaa	gccatattcg	actacaacga	actactcagg	gcagagccgg	acaagagatc	300
ttccactacg	gcagagccat	gctctatctg	gccaaaggaa	tgctcggcgat	gccgagtcgg	360
atctggaaga	aatcctccgc	gtcaatgact	cccgtctcaa	gcccgtctcg	gcctgcacct	420
ggtggcaacg	atgaaaaggc	atacgacaaa	gccgaacggc	tctacaacta	cgtgatagac	480
aaactcccga	aaacgccgca	gcctacgaag	ggcgcgcccg	cctcttctcg	aacaagggat	540
gaaaggctac	gccctgcgcg	acatcaacaa	agccttcgaa	tacgccaccc	gcctgccgcc	600
tccctcttcg	tgctgcgagg	cgagatcaac	gccgccaagg	cgacaaggaa	agccggcgg	659

(2) INFORMATION FOR SEQ ID NO:1096

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 791 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...791

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1096

ctctagagga	tccccaactt	ttttcagtac	acgtcagggg	ttattcctta	tcttgaattt	60
tgctcaaadc	tcatgagaaa	acagatgaaa	ttcgcttccc	attttccttt	tttacccttc	120
cgagtgtcaa	cttttttcag	tacacgtatc	tttaatgcgg	taaaatctgt	cacttcgata	180
aattacgagc	cgaaaagctc	ggattgtggg	ctgtaaatcc	tgagaaaacg	gggcgagaat	240
tttttgcttt	ggcgcgtaaa	aattttacct	cccagagcaa	aacgcaaaaa	attagcgcca	300
cgctttcatg	gctgtaaagc	cggcaatttt	tggagcctga	acctcgtagc	gggggagggg	360
gtagcgatgt	gtactttcgt	ggacttccga	gtcagggttc	ggctctatat	tgagccgggt	420
gtcccgggtg	atcagggtatt	gttgtcttag	ggtgaaaacg	ccgattgcag	ggcattaagt	480
cgccggctct	agctgtcggc	aacctatagc	gaccgatgga	aacctctctc	cgaagtactc	540
ttgcagagta	atgaataact	ctctaaagcc	ggctttcgac	aggttttcct	gcacctgagt	600
ggactatact	cgtatattaga	gaccattgca	caaagagctg	ttctttctgc	tagcttggtc	660
ccggtgtgtt	tttgaccatt	ctcgtcgttt	tgcagcctgg	ggactaatat	tcaagggtgaa	720
gaacacatct	aaatgtcaaa	aacacaagga	aacttggtcg	gtattggtga	gctggatttg	780
tgcatggtct	c					791

(2) INFORMATION FOR SEQ ID NO:1097

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 323 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...323

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1097

ggaaacaaaa	cttaaagcat	ccttggnatc	atcttccttt	ttgactatag	taaatctnca	60
atgtgaacat	tccctccgag	gaacttttga	taatctctna	gtaagggaca	tgtacaataa	120
cataacttgag	caattcccaa	aacagatctc	tngntgctct	cgtgatgata	ctacatgtgc	180
ttncctataa	gttttttata	ggcaggcatc	catttaactg	ctttntaag	ccagtattnt	240
agacgtagga	ggcattatta	agcataaaca	tacttntaac	gntcttatng	tttaccatga	300
aagantttatt	ctntacttaa	aaa				323

(2) INFORMATION FOR SEQ ID NO:1098

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 642 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...642
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1098

cgctcaatggc	agggtggcat	ctacctatcg	cgaagaaggc	gacgagtaca	tattcgcggtg	60
cgcttgggccc	ctgagttcag	gcatcattg	agggacttga	aaatatcctc	atttatacgc	120
ctcagggcaa	agggtgttcgt	ctgggaggct	gggtaaaata	gaagagctgt	acactcctcc	180
caccattgaa	cgaaagatcg	tcagcggtgc	gttatcgtag	cttcacggc	tgtcaaagga	240
gctgcttgag	cgatttggtc	gaagtggcca	aagaaaagat	tgctcaactg	gagatcccga	300
cgggattgac	tacaaaatca	gtggtacata	cgaggaccag	cagagacatt	tgcagacttg	360
agcaccctta	tgtgctgcat	cgtgatactc	gttttatcgt	catggcagca	cagttcgaga	420
gtctcgctga	tccgtttgtg	acatgttttc	cataccgttt	gctttcacia	ggtgtcatag	480
tcggtcttat	attacccaat	taccactttc	agcgctatgt	cctttatcgg	tctgattatc	540
tgatgggtat	cgtgggtgaa	agaaccggta	ttgtgctcat	cgatttacct	cgtctgtgtc	600
gcgaacgccg	tatgggcatt	ctctctggcc	gtagtacagc	cg		642

(2) INFORMATION FOR SEQ ID NO:1099

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 512 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1099

cttcagctgt	ttcgctcaca	gctacaacga	tttccgtata	gatgcggagg	tctttgtaac	60
agggttatac	tggagcggag	caaagtttac	tacctgacac	gtacatcgcg	caggatgaaa	120
ggatcgctca	gcgtagcgat	ttcgcccgga	agaacttgct	ttcattatag	ctctgtccgt	180
acacgtaggg	gatttgtcag	gattttcagc	gcgagagata	acacctttag	agggagcgat	240
cagcaatcct	tcttttcgat	gaatttgga	gaaactacct	ctaccttcat	cgcagtgttt	300
cagaaacggc	aagagaacgg	gaaagaatgg	gcaatatagg	cgtcctttct	ccgagatatt	360
gacaccttcc	gtgaaggtag	gcacctgaac	taccctttgg	aagtctgttc	gcctgtgaac	420
tgaagattgt	ccatacggaa	tgcaccttgg	acatagactg	ctcagcggag	agcagtcgta	480
cttgtgggtt	cgaacgcgct	ctgccggctg	tg			512

(2) INFORMATION FOR SEQ ID NO:1100

- (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 724 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1100

ccccgggtgc	ggcacaagca	tttctctgcc	aagtctacct	cggccaagcg	cgcctacgag	60
agcaagacca	agacttgctg	agaagcttg	cacaactttg	gcagagaatg	aagactttgc	120
acctgaagat	gctctacagc	tcgcggtcg	aatccctatg	accagaatgc	cgtcagctca	180
ttcttcgacc	ctgaatgatg	tttggcctcg	cagatggctt	cgacatcgtg	attggcaatc	240
ccccgatgta	caactacaga	ataatggggg	agaattaacc	aagctctatc	aaggtgtgac	300
ttcaagactt	ttgctcgtac	tggagatgta	tattgcctat	tctcgagcga	ggctggcaac	360
tactcaaaga	gggagggcac	ctctgctaca	tccctccaac	aaatggatgc	gtgcagggta	420
tggagaaaag	acaaggctat	tttcgcctcc	aagactaacc	ccaagctact	tgtagacttc	480
gctggagtta	ggtctttgag	agtgtctacg	tcgataccaa	catcctactc	ttcgccaaga	540
ggccaacgca	ggacagactc	aagcgggtct	cctgaataag	aatgtccaat	tggcggtagt	600
gaattgtgcg	aatatattca	acagcatgca	acagccttgc	tttcatctcc	tccgagagct	660
gggtcatcct	atcccctatc	gagcaggtat	caagcgaaaa	atagaagccg	tcggcaaacc	720
tctc						724

(2) INFORMATION FOR SEQ ID NO:1101

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5069 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...5069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1101

aagggaatac	ctaatacatta	cttcacacca	tagtgcaaac	ttcgtagtac	nctttcacnt	60
tttcgacctg	attgcctnng	atgattatth	ctccgtcttg	gctgctcctc	ccactccgca	120
tcgtgcttg	agcaggcgcg	acagatcgct	agatcgctcg	cggaaaccgac	gtgtccgctc	180
acaaggggtga	cctctttgccc	cgacgctgct	tccgatccag	cgtgatacgc	agacgttggt	240
tctccgagga	agcgtctcag	ctacctcttc	gctatcttca	tgttcgtatt	ggaatcgggga	300
ttcgtagctg	acatgacccc	cagtctgttc	ttccagtcac	tcaattttat	attctccata	360
aataaaaagct	gccgaggaga	taccacaacc	tcacgacagc	ctttgttcct	aatcaaatac	420
cgcgcgtctt	agtgcggatt	attctttttg	gccgacttgg	taatgcgctt	gcgcggctca	480
ggcatggctc	gacacgaacg	atatgtcat	tcgcaccctc	ccacatgac	tccttttcac	540
tgtgcgcaga	taagctatct	catcgccttt	tttcaccaca	gtgccttggc	tactacctcc	600

gtaatacggc	cgggtgaatgt	accaatagac	tttctcgtat	agccaaattg	gttttcgatg	660
tagcagaaag	gctggccggg	acgatatcgg	caccgatagc	cggagcgatg	gattgctctt	720
ccgtatcgat	ttcccataga	gtcgtccgga	gcaggggtgcc	acgatcggat	cacatccggc	780
acgctagctt	ttttgatgtc	ttcgtcgcga	tatccctgct	tagccatgcg	atcgcttttg	840
ctttgtccag	atcggcattg	aagcgctcct	tggttacgcc	gccttgtagt	cgcgatatgt	900
acggtcgtgc	atggcaagct	cgaatagctc	tcgtcgtctg	ggccatactc	ccaaccgttc	960
tgatccattt	ccttgcgaaa	tcgtccaagg	catcaggata	aaattgctga	ggatcggcat	1020
ccgaaaattc	attcccttct	cttttgccaa	agcgatgac	tccggatcga	gtttgccggc	1080
aaacggcccg	atttgccgag	gatcatatcc	catgtgttct	ggtcgatgct	tgccaacgcc	1140
cttcgccccg	tatcatgttg	tacacgttca	tcagggaaca	ttcttcacat	actggctgaa	1200
aggagttacc	aaaggaggat	agccaggcgc	ggccatacat	actctacctc	ttggaagaga	1260
cgtaccagta	gctgtcgatg	gtcatctccg	gctcgccctt	tcctttgagg	aacatatattg	1320
tactgcatgt	acccctttca	ggtcggccat	catggatccc	atcataccgc	cgggagaccg	1380
catcccacga	gcagcgagct	cgtctctttg	ttcgacggat	catgaaatag	cccaagaagt	1440
cgtctataaa	atcttctgtc	aggcttcgga	tttcagttag	gcataccatat	tgatctccgg	1500
cactttgaag	ccggcatcct	gagcatctgc	tggtatggtga	tcacatccgg	atgcacctta	1560
ccccagaat	aggctccata	gctacgtcga	tgatgtcagc	cccatctctg	caaacctcag	1620
catggaagcg	acagagaagc	cgggacctga	gtggccgtga	tattcgtgat	tacatcgggg	1680
tgcttgggtct	tgatggattt	caccagctga	cccagaaaat	gaggacgacc	gataccggcc	1740
atatctttca	ggcagatctc	ggtgcctctg	tcgatcagc	tcacggcca	gaatggagta	1800
gtactccacc	gtggtacgga	gagaacgtga	taccaaagcg	tagcctgtgg	gatcatgccc	1860
gctccagtgc	atatttgatg	gatggaatga	tatgcgagca	tcattcaggc	ctcgaatata	1920
cgtgtgatgt	ccacgccctg	tgctttcttc	accttgatca	cagccggcgc	acatcagccg	1980
gtacggggaa	catacgaagt	ccgttgagtc	gcggtccagc	atgtgggtct	gaataccgcg	2040
ttcgttgagc	ggtttggtaa	agcgcgcact	gctttgttgg	ggttctcccc	atacaggaga	2100
ttcacctctc	gaatgcacct	ccgttcgttt	ccactcgcgc	aaagcaaccc	atctcccaat	2160
aacgggagct	atgcgttcca	attgatcttt	tcgtggttgg	tacttctctg	cgactgccac	2220
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tgttgtgtac	ttgacttctt	ccttatataa	ataccgactg	tgatatgcta	aaccacaaaa	2340
gcaaagggtat	caataattcc	atagttaatc	cggccgaaat	gaatttttcc	acacctctgt	2400
acgatgaagc	ggagcaccgc	cgatccatcc	atttcggaac	agcccgaatc	aagaccggca	2460
taccccgtaa	tagactgatc	gagaggtcac	aagctgatca	tcgcctccta	tagaaacgat	2520
tccggagaga	ttgttcattc	gggagtagta	tcggtttggt	ttttggtgcc	gaaagacgga	2580
gaattgccga	gcctaaatct	caaaaactcg	aaccacaagg	aaaatcttta	cgcgcgagat	2640
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tgctttttca	tgctccgcaa	ccgctcggaa	agcaattcct	gctactgtcg	agaaaggctt	2760
cgacagcaga	ggccgtggtg	cataccggct	ccctatgtaa	taatagggtat	gcctcatgta	2820
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gaccaagaaa	gaactcggat	tcagaactcc	gttcgagtgc	ttcttgctaa	aattataaaa	2940
tacaattgtg	ttgcacatat	ttgtgggatg	tcgacggaag	gcaagttatt	gctccatagt	3000
aaaaaaagat	tacctttgca	gctgttacgg	atggatgggg	aggcgaccgc	atcaaggttc	3060
ctcctttttg	tttatcccaa	tgtccaaaag	tacagagcga	gatgatagac	agagaacaaa	3120
tcgttcggat	cgtttcgatt	atttgtccac	cggggagact	ttcctcgtgg	aggtggcgat	3180
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gcgtagcact	gagccggcac	atcgaatccc	aagtggatcg	ggaatagaag	actacgaact	3300
ggaagtaggc	tcgaccgggc	tgacgtctcc	tcgaaagtga	tcgcgccagt	ggagaactgc	3360
attgatagcg	agctgtccgt	atgctaacca	atgggatgaa	ggaaaccggt	cgccttatta	3420
ctgtcgtccc	gaagctatca	agctggaagt	ggtagcgtatg	gtgaagccgg	aaggagccag	3480
cgcaaaaagc	ctgaaactca	agagttagaca	atagtcatgg	ccgacatcaa	caggccgtgc	3540
gtatcatata	agcaatagta	aaaaagaatc	aagagaaaca	ccataaagag	agtcctatgg	3600
ccaagaagca	agagacgatc	agcatgtaga	atcgctggca	gaattcaaag	agctgaaaaa	3660
cattgacaaa	gagacatgat	caacgtcctg	gaggattcct	tccggaacgt	tctggcaaaa	3720
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atggcgacc	cgtcaggtag	tagaggacgg	tgccgtagag	gagaaagtctg	cgaagtgtct	3840
ctgtcggatg	ctcacgagat	cgaccccgag	gggaggtcgg	tgaggaaagta	acggactccg	3900
tgaacttcgc	ttcattcggg	gccgtgccat	tctcaatctt	cgccaagctc	tctccagcaa	3960
gattatggac	ttcagaagga	aaacctgttc	aatacattca	cggaacgtat	cgggcagcca	4020
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cgaactcctg	atgccgaaga	gcgagcagat	cccaaggact	ttttccgcaa	aggtgagacc	4140
gttcaagccg	ttgtggagcg	cgtgggaacg	ccaacaacaa	tcccaagatc	atcgatatgc	4200
ctacaagcgg	agagtcctca	agaggctttt	cgagctgaat	gtaccggaga	ttgccgatgg	4260
cctatcacca	tcgctgcgt	agcccgatc	ccgggagaga	gggccaagat	ggcgtagagt	4320
cttacgacga	tcgtatcgac	cccgtaggag	cctgtgtggg	ttgaacggtt	cgcgcatacg	4380
aggtatcgtg	cgcgaaactga	gaggcgagaa	atcgacgtta	cgcagtacac	gacgaacacc	4440
gccctcttca	tccagcggga	ctcagccctg	cacgtatatc	ttcgattcgc	ctgctcgaag	4500
cagagcatag	gccgaagtat	tcctgcgccc	cgaagaagtg	cctttggcca	tcggaaaaat	4560
gcctcgaata	tcaagctggc	atcggggctg	acgggttatc	agatcgagtg	ttccgtgaca	4620
tagacgatat	ggacgaagaa	gacatctatc	tggacaattc	aacgacgaga	tcgaccagtg	4680

gatcatcgac	ctgttcaaga	atatggttgc	aatacggcca	agagcgtgct	cagcaagaac	4740
agagaagatc	tgacaaagag	acggatttgg	aagactccac	catagactat	gtactcggag	4800
tctgagtgcc	gaatttgccg	atgaggatca	ggtgactgat	aatcaaagta	cgattcggat	4860
gatttggaca	atttctctgc	cgaagacgat	ctgaagcaag	gtaataagaa	gaacaaaagc	4920
agtctcctcc	ccatccctca	tcttatagtc	aatcctcaca	aagggtgcagc	ataaatcaca	4980
gaagaagaaa	aggtttagttg	tcaatnaaan	aattcagctt	agctaaagag	ttaaattgtag	5040
gagtaggtcc	ctcgccggct	ttcttcgga				5069

(2) INFORMATION FOR SEQ ID NO:1102

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1102

ccagacagca	tttcgatcag	ctcattgtcg	atcttcgatg	ccggcagtag	atcgatcatct	60
ttttgatcaa	tgtatcggcc	acttgaggta	gcagttcggt	gaggtcacga	ccaattccat	120
ttcacctct	ttccacttat	gaggctgacg	gatgcgcgaa	tgaggagata	cagccccctcc	180
ttgcaataat	tgccgagttt	acatgagcct	gtccgaaaag	aggtatttcg	cccgtgccgg	240
acagacctct	aacgtaatat	ttgagtacgg	attattcgag	cgagagattc	cctgaaagcc	300
ttggtaacaa	taccggccaa	aaccaaattt	ttcccgacca	aggatcggat	cgggtcaaatac	360
ggctgcatgg	gtattgcaat	agtggatcga	gatgacttgg	tactgagcct	ttggattgga	420
acta						424

(2) INFORMATION FOR SEQ ID NO:1103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1103

ttccgctaaa	agattctatc	aaggaaagag	ccttgtaatg	ataatccgag	cttctgcca	60
agcaccgata	cgacggctat	ccgttccgag	atgattcctg	cttgtgcggc	tacgatggg	120
tcccttagat	tcaatgcagc	gttcaacctt	tttggtgata	tagcatcgca	tctgtgtatt	180


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gggacatatt acgcatcggt tgccgacctc gatcgcggaat aacatttggt ccacaagggt 240
cttgtctgta cgctgttctc gtaaagctgt ttaacagaat cagtggggag ttcttttcgt 300
acagcaatgc agtaatacgc tttttctctc gggcgatttc agtacagagt gtttttcttt 360
ttttccacat ccgacccaaa tcgacaatat gataataata atgggaaaag tttcttcatt 420
tggttttcta tatgcaagtc attccggtgt aaaactaatc aaacatggat aatctgacac 480
ataaatatgg ttgtgaaaca atattgagag gagtgcgaag cgtccatttg aattatttct 540
atatttgagg agtcggtgcc ggtaaaaaag atgaataaac tttttcttgt cttcggcata 600
aagacaaact aaaaaagaaa acagagaata gaagtaggga agctcatggc tttcgtcact 660
tc

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(2) INFORMATION FOR SEQ ID NO:1104

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1104

```

ggccgggtcct gtctgtttggg cgatggccgg cataccgcac aggatgagga tgccaatgat 60
aatagcgatt tgttcatacg ttggtcgggt atcgaatcaa tgagtgagat gaggacaaaa 120
gagccaatgg gcgaatatgc cggcgacagt ccgccgatcg catgtgctcc gatcgctgt 180
gtgatgaggg ggcgggtcttg agactgtcga gcatggccgt gtgcgtactg aggaagccgc 240
tccagacata cccatggcgg tgaaaacggc tactgcattg ccgtccagga tacctgcgcc 300
gagaagttgg gtaccagtcg gagggctgca ccgactgctc cgacgcgggtg atcgggaagg 360
cgatgagggc ggaatcgggt aagccgaaga gcagcggaag aggaagtcca cctgtcggc 420
aagggccggc agcaggccga cccttcgtat gccttgccgg cgaagggtgc gtcgggtccg 480
gcaggtccgt ggtgagcatc ataacggccg tactgatgat gagtacgccg gggatgatgc 540
gataccgagg tctacacccg tcttgccgcc gtccagtacg gcattgagat acgcaggaaa 600
aggttctcct tatgtctctt cgtttcctcg tgctgcactc ctccacattg accggactgt 660
ccatttcggg atagcggcgg agcgtgtccg

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(2) INFORMATION FOR SEQ ID NO:1105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1105

cggattttcc	ggaattgctg	tcagaagtcg	agacgatagt	ctactccgga	ctcgaatcaa	60
tatcgactac	ttcatcaacg	aggatcatgga	cgaggatctt	tggaagatat	attcgagtat	120
ttcaaagaat	ccacgacaga	ctctttgagg	aggctatgca	agaactcggg	aaggactatt	180
cggaggaaga	gattcggttg	tacggatcaa	gttcttatcc	gaaatggcaa	actaatgcat	240
cagttatgat	gctataatac	ggtacgaaag	atgaaaaaga	atggaatgcg	catcgcataa	300
tcatgttgct	gttgctctac	tgggcactcc	cctcaatggg	acaaagaacc	gtggatcgac	360
gaagtcgtat	ggatggtggg	gagacgaacc	gatctgcgct	cagacataga	ggctaccaaa	420
acgttttttg	ctcagttcgg	gcgccctctt	gaggggaatgc	agactgctat	attcctgagc	480
agattgccgt	caaaagcttt	ttctcaatca	agccaagatg	gacag		525

(2) INFORMATION FOR SEQ ID NO:1106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 510 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1106

atgccattcg	ggcgatgtaa	tatgggagaa	ctggctcttg	ccacagaggc	ttgcgcaagg	60
caatggaact	acgtcccag	tttgagacc	gttattattg	actgaagcat	tgcttcgacg	120
ccatctcacg	gaagaagcgt	tggctcaatg	aatttactcc	ttgaggaagt	tccgatgcat	180
acagcaaccc	tgctcacctg	gctaagttga	ggttagaaca	aaatgatccg	tcccagacac	240
ttgagactgt	ggtaccggta	tcgaatctac	atccgaattg	gaggaacaag	ctctttcctc	300
tattacggag	cctccgccat	gaaggacatg	aaaaacctca	agaatgccct	ttgcctgctc	360
aaacaggcca	tcgaaaaaaa	atgatgcctt	catccggcca	gactccttcg	agcgcgcata	420
ctcattgact	tggagcgcta	taagaagcca	cccaggattt	ggattgggtg	gcagcattcc	480
gatccggaag	ggaacagggtg	cctatgctcc				510

(2) INFORMATION FOR SEQ ID NO:1107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2156 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2156

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1107

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atcatagttg atgacgaaga gtccatatcc atccacgcag ggaacttggt cgaaaacgct      60
gcatcgcccc cttatcgagc gtatggtaca gcacctttcc tctccttcgg cacaagtggc      120
aagatactcg ccccgaggcg aaaggatgcc gaatcgcccc tatagcgag accgataccg      180
tcctccccc cccgatgatg ccgcacacat aggcatagtt ctccatggca cgagcttggg      240
gtagctttgc cagacggcgc gacgcggctc aggccagttg gccatgcaga cgagagatcg      300
tattccagat ccgtattggg acaccagacg ggaaaacgca gatatagcag ggaatgatga      360
agatcttcca accgcgatag ttgaagatcc gggttcttgt gccggagtca tcacctcatg      420
ctctccccct acacggaaga gtgcctcttg tctgatggg agacctctcc ttcgggtgtc      480
acgaaatagg acgattatag aatttcccgt tctcccgtac ggccatcgta gccgacagac      540
caaaccatga cgagcagtc ctctcttcag gctcatgata gtttcgcctc ttcgaaaggc      600
tcgcgcagag cttgtacggt catcgaaaag cccgtagcat catttcggga aagaagagga      660
catccgcat accggtggt tcttcgcaa acgctccatt cggcgtagat tggcgtgctt      720
atcctcccag tctatcggca ttgagctaca ggaactctca atggctgaga gctctcgtgt      780
ttgacatatt tctgattctg caaagtttctg ggggtgccgt gcctgtgatg cccgtaccga      840
cttctgatgt aggcaatct cgcttcttca ttgccgtag ggtgaacagc tcgaatacgc      900
tcatttcttt atagctatag tcgatcacag cagctgaata ggcaactccg ctcctacggc      960
gatgcgatag aatcccgttt ccaactgagga gaatagtccc ttgtaccctc cggggtgata      1020
gcaacattga aacagcatgc cgctgaaaaa attcgcgtag ttgttcgaca gtggaacccg      1080
cttcgagcga tcgatcggga tacctcccat agccctgaag atcgggtccaa agggaagaaa      1140
aaccattcct ttttcatcag gaagccggct ttccgacgat agaccaatag tagagtttgc      1200
ccagcaaaaa gtcgtaattg ctgggtgagg agccacgcaa atgacgcttt ggagcggatt      1260
tgcatagggg acgaggcttt ccagcccatc atcctgagca acaatcgtga gaaaaacttc      1320
aaacacctct atatgttacg ctatttctgc ttaatgcacg taagtgcaca ataattatca      1380
gacgcacacg ccgaaatact cttcacgatc tcggacagct ctcttgaaa tcatccacga      1440
gccggcgata atatttcttt acgagtgcag attgtgctta ccgtcgttgc aacgaatctt      1500
ggcaatggtg gtatcttgag ttggagaata cgattgagga tagtttccac ctctgcgttt      1560
ttttcctctt caaaaagagt ttgagcagga atgcatcagt aaagacttcg gaaatgggtc      1620
ggttatctgc tttttcagtt ttctttcgtc tgccatgctg tcaatatttt gaatgtgtat      1680
gcaagaaaca atatcaatac aaacttacgg aaaaatcaaa gcctatcccc gtacatcgta      1740
ccaaatagaa caccttatgt agcaacagca aagctctctt atttccatgt cgagcaacgg      1800
ccatccccctg ccctcttatg agcaatcgac aggacagaca caaatgacac acatagttca      1860
tcagctctct ggaagtcgca ggaattggct acatttgcaa aaacacaaac gcttcaacga      1920
agctaaaatat ctctatccta acacttatca tccgaattaa aacggcttaa taatgaacgc      1980
gtatatcatc ccatttatgc tccttaccct cactctccta ttatctttgt cttatctacc      2040
gtatgccaat ccggtttcga caaaagagca ttttctccta tgatgaatag tccgaaataa      2100
ggttccttac tcattccaaa agacaaggca cccgccgagt tcgctatgca actcga      2156

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(2) INFORMATION FOR SEQ ID NO:1108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1108

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cgagcctctg cctgcctcta ttctggcttt gcccgacaaa cgcggcgtga agacaaagta      60
attaccttcc tgggacgaat cacgatgcag aaaggcccgga atacttcgtc gaagcagcgg      120
ccaaagtact cgaacgcaca tccgacgacg cttcgtaatg gccggaaacg gcgacatgat      180
ggacgccatg atcaggtggc tgcccgcacac aagatagccg accgcttcca cttcacagga      240

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tttataaagg	cgaacagggtg	tacgaggtat	ttaaggcaag	cgatgtctat	gtgagccatc	300
cgtatccgag	ccattcggca	tctctccact	cgaagccatg	caagcggagt	cccctccatt	360
atttccaaac	agagcggatg	tgccgagatt	ctgattacgc	catcaaagtg	gactattggg	420
acatcgatgc	catggcagac	gcatgcatgc	gcttatagct	tatccggaac	tgcatacttt	480
cttgcgggac	agggtctccg	agaggtgaac	aacatcaagt	gggagactg		529

(2) INFORMATION FOR SEQ ID NO:1109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1109

tctanaggat	ccccgggatc	attccgcaag	gggatgggca	aacactatcc	tgagtgtctca	60
gaccaatgga	aagtactatc	agcagtatag	tgtcacatta	tggatccatg	gtttgggggc	120
aagcggcccg	gatatgttca	gcttcaggca	ttctattcca	agactacggc	gattgactcc	180
aagttctaca	atagcatgcc	ggcaactact	ataatgccta	ctataatagc	tactacaaca	240
actatatagt	tattacaacg	gtatgtcgaa	ctataccggc	gacctctata	ctcagccagc	300
gatccccgat	cgttcgcttc	agatgttagg	tacttcgatc	ggtacggtaa	agcgtttgac	360
ttggccggac	aattgggttc	agattttatac	tttctgaact	acacctacta	tagactgcga	420
aattggagct	acaatacctt	caaaattttcc	atcatggctc	gctaattgatc	tcaacttgga	480
gcctgcgtct	tctcgtactt	ccatcgataa	tccatatttat	accagagccg	gatcggatta	540
tggttttctg	gtgctgctac	tcttccttat	tctttgtggg	acaatcatac	tatgccagcc	600
agaacttc						608

(2) INFORMATION FOR SEQ ID NO:1110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1110

ctccttccag	tcttgatctt	tgatgaaacc	cagacgctca	agctgttttg	gtaataagcg	60
tagttataaa	tggtagccat	cgtacccagc	tggtcgaacc	ttcgataagc	atcccttcgt	120

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ggtccatatc ggtgaaaccc attggccttg cagcatatcc atccccttgg agcgtgccca 180
ttcggatacg gcatggaaag ggcattctac acttcattgt cgttgatgaa atcgacgaac 240
ccgaacgagc gttgttctga ttccaagttt cattggcacg gtgattgatc atacggcgat 300
gcgtcccaag atccgccctt cagcataagc caagaaatag atgcttcgca gaactcaaaa 360
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agggattatt tctatagaga ttatatgaa ctgaacgaat ttcttcagct cggctttgtc 480
caatacttct ttatttctac agccataaaa ctctgtattta gtttacctaa gtagtcaaag 540
ttacaccgga ttttgacac ttcacgcaca aatataactg aaatagttat catttattgg 600
ataaaatctg catctactgg                                     620

```

(2) INFORMATION FOR SEQ ID NO:1111

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 813 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...813

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1111

```

ggttcaaact ggccaatatg tacgtacagg ccggagagat agacaaggca tatacatata 60
caaccgtatg gaggcacaaa atgctgtcaa tgcagcagtg cctccaacta tgctgagatt 120
cgggcacgtc tctacctgat gaccggtaga ccaacaaggc tctgaacgaa ctctgccgtc 180
tatgcaatcg attcccgaag tgaatgagtt taggctgaag tatgccggca ctctgctcga 240
cagtggaaagt acgacgaagc ctacgagcaa ctgcaactga tagctcggac ggatcgacaa 300
gtggcttgta tcattttgct atggccagct attacttggg aacaacgaaa aagaagctgc 360
catcaacgaa atgatcaaag tagccgctga caggatgtgg caccggagca gaaactaccg 420
atcatcctgc gctttatcgg tccgacacag acgaagagga tgcaccgaaa aaagagtata 480
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gccgagctct tggaaatgca gggtgattct atccatgcca tggagggttg cgacctatca 600
cggagtttgc tcctaaagaa gaacgggcat ggaaattatg ctgggaagag ctgttaccgg 660
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ccgctatttt acctcacgat gccatttcct attatataga gaaaaaaggt tcagaagcca 780
agcaatactg caagaagcat tggagcatat cga                                     813

```

(2) INFORMATION FOR SEQ ID NO:1112

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1112

cccagcatga	agaccataat	cttggccatg	ctggcgcgta	tcgatcgag	agcatatcgc	60
ctgccgagac	gaggttggtc	aggctcagga	tacggaagtc	ctcagcagtc	gaaggatgcg	120
gaagaccatc	agcacctgtg	ctccgcttag	acaagggcta	tataggaggg	aagtatggag	180
atgaggtcta	tgatgcgtaa	aaggaaagga	tgtaccgcca	cggtttatga	aggcagtaga	240
tccgcggatg	tattcgatgg	tgaatacaat	ggtgataacc	cactcgcacc	aatgaaaaaa	300
ttccctcgtg	ctatgggaca	ggccttacgg	tactttctgc	tgaacgacaa	tgacgtctca	360
gaaaggatga	ggcatagcag	gagaatttcg	aaaagcggtc	c		401

(2) INFORMATION FOR SEQ ID NO:1113

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 789 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1113

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tgtggtggag	tctgccgatc	agcgatcggc	ctcggtcggt	ttgtcttttg	tgctaattac	180
catacagatg	aagcattcaa	tcaatcgaaa	aaaactactt	tcgcggagta	attgccttac	240
aaaacgaatc	cttttcata	ctcagataat	cttaccggaa	cgatgaaagt	attttcgaag	300
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gcaaaagagc	ctttggcgca	aaggttttca	cctctgatgg	gtgtagtatt	caccctgtat	420
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gcccgtgtcg	tggaacaagc	tttctgtcac	agattcgaca	ggctgtccaa	agagtgcagg	600
ctgcacatcc	attggggctg	ttcgtttcca	taggttttcc	tcggctttac	tcgtgatata	660
tggactgaat	atcgtgcgct	atcccgtgta	aagcatatgg	acattcgtct	ggacagacct	720
gccatagatg	gaaggagtcc	atgaaagtag	ccctgctcac	ggatattcat	attagcgaag	780
cggtacggc						789

(2) INFORMATION FOR SEQ ID NO:1114

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18062 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...18062

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1114

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(2) INFORMATION FOR SEQ ID NO:1115

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2092 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2092

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1115

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(2) INFORMATION FOR SEQ ID NO:1116

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...7530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1116

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(2) INFORMATION FOR SEQ ID NO:1117

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...4506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1117

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gatcat						4506

(2) INFORMATION FOR SEQ ID NO:1118

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 403 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...403

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1118

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tgagcgaaag	acaggtagca	gccattccag	tttttgggaa	tccttttctc	cagcaagcgg	180
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ccatacagtt	gatcgctccc	ggcaaagaga	aacatcggtg	cgaagctgct	ctcatctgca	360
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(2) INFORMATION FOR SEQ ID NO:1119

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 3642 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...3642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1119

acctgctcta	taatacggcc	tatttcctgt	ggggagataa	gcgatggagc	cctcctccga	60
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atatcttcta	tgatacggga	ggtgataatt	catcggcagt			3642

(2) INFORMATION FOR SEQ ID NO:1120

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3150 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3150
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1120

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accaatcgat	cgatgcgcca	acggcgccaa	tgaatccccg	tgcgagtgac	aatgtcgaat	180
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(2) INFORMATION FOR SEQ ID NO:1121

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6442 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...6442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1121

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gtttgggagt	atactacctg	attctccggt	tattcaacgg	caaactgagc	gacgtttggt	5400
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cgtccgcgta	cgaacctgta	cgccggagcct	ccagctgtgc	agtagccgct	tcgctatata	5820
gcggagacac	ggctgtagct	tcggctgtct	gggattgggc	gattgtgtgg	atgcctgcgg	5880
ttcgatgcta	tcgcgacaa	cccgaacacc	ttgtgcgcg	aagtgggtgg	gatgtttgta	5940
cgccatgtgg	tgcttgtgtc	aaggcctgtc	ccaaatcgct	atcgaaactcc	ggaagaaaag	6000
gcctaagagc	cgccgtatct	ttgttagtgc	gtgaacaagg	acaaaggcgg	tgctcgccaag	6060
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ctatcccac	gagaacaacc	tctcgtacat	agaccacacc	aagtgtcgca	tgtgcgcaag	6180
tgtgtggaag	tatgtcccac	gaatgccacc	cacgagctga	actcccaccg	aagaagaaaag	6240
tggagccggc	tgctgccacc	gaagctgccc	cacggcacaa	gagactgtct	aaggaataaa	6300
taacaacaaa	gaccacatag	attattatgt	tgaggacttt	ccgaatcggt	ggtattcacc	6360
ccccgaaaa	aagttgtcgg	caggcaagcc	cgtagaggtg	ttgcctatcc	ctcacagggtg	6420
tcacccctct	tggtcagcac	at				6442

(2) INFORMATION FOR SEQ ID NO:1122

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1122

```

cggtctggata tgctccgaac gtccgttgcc tcgggagacg gtactgacct gcggttccaa      60
ttggagtatt  ggggcgatat atatcggttg atgaagcagt tttccctcaa gcctcggacg      120
aatggctgtt  cggtttttacc tcggatcatt gctttggatg aagcaaaaca ggaaaatcct      180
attggacaat  gctcttaacg  cggcgagatg gagtcttctc agccgactgt cacggatcgg      240
tacttaagga  gttgcctccc gatcagctgt tacctcccga agctcctcgc ctgacggtca      300
ttggcttgga  accaacctgt  aagctcaggt agtattaggg caacgcatac atatgatttg      360
tttagagcga  ggagcttcgt  tttcgctctc tgctgaactc ctaatgggtg tcttggtgca      420
cattggtatt  tatggcacac cgctatcttt gcaaccgat  cttattcaat cctgacctcc      480
aatat

```

(2) INFORMATION FOR SEQ ID NO:1123

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1123

```

ggagcctaaa  ccctcgcaga gggagggagt cngatgtgt agtttcccga cttccgagta      60
caggttcagg  ctctgtattg agcaggtctt catatcggag gcctcgtgtc aggtattggt      120
tgtccgccgc  ttgcggagca tcaggtcttg gctcggagca atcggcagaa cctgtcccga      180
ccgatcgaga  actacttccg aagtactgct tacagaaaat gtaaagcccg aatgctgtcc      240
gatcttactt  tgtgggtaat aattggatta tatccgggtcg gaatttctgt actttgatta      300
gaaataggca  tcccattttt ctttcaaaaa agaacacaaa tacttgattt atgatgaagc      360
catctctttt  tttgacactt gttgctgtgt ttttatggtg acaataaaaag gattagcaaa      420
accacaaata  gacaaagagg tgatcccata acgaagctga ctttacgaaa tccccagaat      480
ggaggcagcg  ggttttatgg acaaatatcc catgctctgc tga

```

(2) INFORMATION FOR SEQ ID NO:1124

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1124

```

cggaatatca gcgatttcgc ttatctcacg acactggatg ggatgctcgt taggcattta      60
ttgggacgat ggttggtact atgtctattg tagtggcttc tactcaatcg cttagagta      120
gaagagatgc aggatcatac ttaccgctca cacgaataca gtactgcacg cagcacgagg      180
agggcaaggc ctataagctc tcatcaaggc tctatctctt gacgggtctag atatgtcggc      240
ttatttcagt ataaggacta gcttcataaa aacgattgca cctaacagca ttcttaagat      300
gctgttaggc gacttcttat tactgctgga gttgttgagt gaggcttctt gctcttgga      360
gaggagtgtg tgctggagct ggagttcggc ttgcgttcga tggctagtgc gtagttcgtg      420
acacgagagc ggagcttgcg atggagtcgg aggagtcttc ggaggagaaa aggctgtcaa      480
ggctggcgat tttggctgtg tatagccgag ctccattcgt agaatacgat agcggagaga      540
tgactatcaa gggcttgatt gacgccatag agatgtgtcg cccaaccatg acgcaggcaa      600
ggacagcgat catcacacc ccatagagcc attctgccag cgtttgacat cgaaaaggta      660
gtattttgaa agctttatct cgggtgggtt tgtttagttt ggagttctgt caagagtttg      720
tcggtcgcct cgtctgactt atccgtacct cggtaatgcc tgacttcatt tcgtagatgc      780
gctcccaagt ttagcaatta cttgacaaag ttcctctctg aatcgacgat gaactcctgt      840
tgctcctcta aaatcttggc gattcctgcg agattttttc cttctctgac ttctccttgc      900
gactctgttg gttgtggtaa attggagata ccgctttgag ttctctgttc tgttgcttga      960
ttctctcgag tactt                                     975

```

(2) INFORMATION FOR SEQ ID NO:1125

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1509 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1509

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1125

```

cgccggcgag ggagaaatag acgaccatgc catcatcagc ggcggagtgt gatacaccag      60
ttcgtacgca tctctcagca tgtgatgata caaggtgggtc ccgcctctcg aaggacatcc      120

```

ctccgtatgt	actggtggga	cgggatctct	cgtttattgc	ggaatcaaca	tcgtaggtct	180
gcgcccgcga	aattttccaa	cgagcagatt	ttcctgatca	atgatattta	ccgcacactt	240
taccaagagg	actgaataat	tccgatgcga	tcgatattat	ccagcaggag	tacgcgattg	300
tcatgagaag	gaactttat	tagactttat	caagtcttcc	aaagcggcat	tgtccgcgga	360
accatggagt	gaagccatga	tcgggatatt	catggagcac	gcatcaagga	gcttgaccgc	420
tacacgatag	agcagcagcc	ttctcttcga	tcgatttagt	cgaacgagca	gccgccacat	480
gggtgtatga	ttcgaacgtc	tctacaccca	gcagcgccgg	atcgtagtct	tcgcggcct	540
ggcaataatg	gagcggatgc	cctgtgtgca	gcccgtattc	tgggcgaaac	ggctattcgg	600
tggtatgcctt	tctcttcaat	gtcagcggat	cgctcagccc	gaatgcaacg	aatgcagggt	660
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acgatcaagc	agagtatttc	ctcaataaccg	atttcgatat	atccggcatc	atccggcacg	1080
ccctcgtttt	gcgcacaaag	gaacgttcgg	ccatgctctg	ctcatagggg	aagtcggggc	1140
aagatgggag	cggcttgtct	ggctgcaaag	gcttgttccg	aagcggtatc	ggtctattaa	1200
ctacccatat	accgcctgt	ggcgagctgt	catgcagacc	gccgtgccgg	aggccatggt	1260
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ttccactcct	aacggccctt	tggtgcttga	tgccgatgcc	tgaacatcat	tcgagaaaac	1440
cgcagttggc	tcgatcgtct	gcctatcaac	gcatcctcac	acctcactcg	cgagaactgg	1500
aacggctga						1509

(2) INFORMATION FOR SEQ ID NO:1126

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1108 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...1108

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1126

aacaaactca	acaaaaaaga	atatccaatt	agcaagatcc	aatataatta	gaagtcggga	60
agtttcttcg	ggcaacttta	atagtcgtat	caacgatcaa	tgcaccaaga	acatataacg	120
gaaaggacaa	gaaccgctta	aattcaagag	ccaaatttat	ttgtagattc	gtctttcatt	180
cttatattat	tatatataac	cattgtataa	atatccattt	actcttcatt	tgcaaatggg	240
ctttccagac	aaacttttagt	ctattttttg	atcagattca	atgattttaag	caaagaaatt	300
ggctatcaac	agctcgcact	tttcaatagc	aagtgtataa	acgaacaaat	ttaaggcaaa	360
aactgagaaa	tgagtctctga	gcttcgtctt	ttgaacaggc	tgttcgatac	caatagcgat	420
aacaataaaa	gcgcagcaac	cggcctatac	ggctgggatt	tttgctactt	ttgtagagcg	480
atagggagtt	tcgacaatgt	aaatggtggt	tctggaaggg	cttgtctgtc	gaatagaacg	540
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ttctatacgg	gtattagggtg	gatttcattg	ggcctatcag	gtatgtacca	tcgcgtggca	660
tgtggacaaa	ggagatatga	ttccatagga	gtaagcacga	ataggcattc	gatagcttct	720
ataacgtata	aggcaccacc	cgattctttc	ataaatcaga	tgggtgcctc	tgttttatca	780
gcttcaatat	ggcatttttg	gggctgcgat	tgatatacaa	atcattttcg	attctatata	840
tattgaaaac	gatttatata	taaatggaaa	atggtttata	taagatcggt	attcgatata	900
acgagaaagg	tatttcaatc	tgaaaaagga	gattttccatc	tcttttgtat	cataaccaga	960
cttcttagag	ccggcttatt	ggaatgattc	taaactcctc	ttcgctgttg	aaaacttttt	1020
tggcacctat	tttcggtcac	aataccgatt	ttcttagttg	tttttaggcc	taagatcctc	1080
tctctttcag	cctgcagcgg	tgcaggct				1108

(2) INFORMATION FOR SEQ ID NO:1127

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4452 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4452

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1127

```

ggcgcgagaa gtaaaatttt tacgcgccag aacgaaaaaa atctcgcgca cctcttccga      60
aaaacacgag ccgcagatgt gtaaaaaactc gcacagaaaa gttgatgtgg gtacaaaaag      120
aagaagagag aggaggagag ccccgattcc gataaaacta ctcaccagat accttccgaa      180
aacataaata tcggattgca tcaatagtgt cctaaaagtc agtttttggc aatagaaaagg      240
agaggacttc cgggtgtctct ccttcgttgt gttatcaaga gtctccttgg gccataatat      300
aagcctgctt gcccaagttg ttcgcttgta gcctcgcccc ttgttaagaa tctctcggca      360
ggagttccca agtagacaag cacagcaatc cttctactac aaaacaacat acgatttttt      420
tcagtacagg tcatttcgat attttgtgtc tatatttgac aggtagtagc accgaatttt      480
ccatcgggaa aaagagtgtc gtgggcgttt aattagagat actaactcat gtatgggaat      540
ctctgtagat atgcaatcta agtttgcaat accaaggcgg acagatctat caaaaaacaa      600
gcgtattatg aagaaattta ttcaggactt caaagcgttg cccttaaggg taacgtagtg      660
gacatggctg tcggtgtgat catcgggcg cattcgaaa gatcgtcacc tcgttggtga      720
acgacatcat gatgtcccca tcagtttgct gacgggtggg gtcaacttca cagatctgaa      780
attgtattga gcaaggctgt cgtcgaaggc ggagaggctc tgaaaccgga agttcatgga      840
actatggcaa ttttatccag actacggtgg acttcctgat ttagctttcg tgatcttctc      900
gatgatcaaa gctatcatgg ctgccaaag gaagaagagg aggcacctgc agctcctgct      960
cctacgccac ctgaaatcga ctgcttacag agattcgcga ttgtctcaag aagcaataag     1020
cacagtagtt cccctactct tggccgcaaa tggcgaggat ataccctccg accggccgcc     1080
gggaatgggt gagaaataaa gagaaaccac tactcacaac tatcgaaatg gggcatgcac     1140
gctctgccga tagtttgggt agtggtttct ttgttttctg tttactcttt gataataagc     1200
gttccgattg aagaaaagtg tccgtataag gctgattatc acatttcttt tctatttttg     1260
tggtcgctca cgggttacat cccgatgacc tttggacgcc taccactcat gcaccggcag     1320
acgtcggagc agccgatgtt aacctccggc agtttaattt agaaaaatcac atcaaaaaga     1380
atctaagcaa tgattattgg cattccaaaa gagattatgc aggcgaaaac cgtgtgtcgg     1440
ctacccctga aacagtggcc aaattttagt agacgggttc aaagttctgt ttgaaaaagg     1500
agcaggagaa ggtgctcaga tcatgacgaa gaatatgccc aggcagggtgc tacgctggta     1560
gacggagcaa ggccgtttat gacggtgccg aagtgatcct caaggtaaaa gagccttgtt     1620
caacgaacag ctcaatacgc acgaagtaga gctgatgcgc aaaggtagta tctgatcaca     1680
ttcattcatc cggcttcacc ggtgaaccca cgaaaggtag gcaatctggc caaacagggt     1740
gttatctcgc tgactctcga tggttccccc gtatctcacg tgcacaaaac ctcgacgcac     1800
tgacttcgat gagacttggt ccggctacaa aggtatcctg atggctgccg aagacttcgc     1860
cacttcatcc cgatgatggg tacggctgtc ggtatgattc cgcccgccaa ataatgggtga     1920
tcggtgtggg tgtggctggc ttgcaggctt tggctacggc aagcgtctgg gagccatcac     1980
ttatgctgcc gatattcgcc ctgcagctgc gaacaggctc agagcttggg agccaaatcg     2040
tggtataccg ccgttcctcc gaactggcta tcgccgaagg cggatatgcc aacaaatggc     2100
ccgatgagta ctggccaaaag aacgcgaagc cctcaaggcc accattcagg atatggtatc     2160
gtattctgta gcgcattgat cccgggcaag gtggctccga tcatctcacg gaagaaatgg     2220
tgaagggtat gaagcgcggc tccgtaatcg tggaaatctc atcgaccagg gcggtaactg     2280
cgaaatcacg ccgaaggggaa ccaggaagtg aagcacggag tgatgatcca aggtatcaag     2340
aacatccccg gttgcttccg aaaagctcta cttggatgtt cgcacagaa atgtacaatc     2400
tatgaagtag ctacaaaaga acggtcggat cgaattggat atgaacgacg agtttgcagc     2460
aagatctctg ttactcgca cgcgaaatc aacacgcgcg tactcgtgaa gcaatgggtc     2520
tgtaatcgaa ctgttcctac atcttaattc aagagccaag gaacgacccc tctcaagtgg     2580

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ccgtcctttg	gctcttatca	tttgagctaa	tacaccaatc	actcatataa	taatgaatcc	2640
gatcatctta	tcacgtgtct	gatagcttcc	acgottatcg	gctacaagct	gatcacaatg	2700
tgccgagctt	gctgcatact	ccgctgatgt	cgggtatgaa	cgcttctccg	gagtaaccgt	2760
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ctcggccaaa	tcttcggagg	acggccatca	tcctcgctac	catcaatgtg	gtgggaggtt	2880
tcggtgtcac	gaccgcatgc	tccgtatggt	tagcaagaaa	aagaaaggag	gcgaccaatg	2940
gtcctaccat	ctattatata	ctctgcgtcc	tcctctctct	gatggatttg	ggggaatatc	3000
gatgatgagc	cggtgtgaaga	ctgccgtcat	gggcaatacc	tcagtgcagt	ggccatgttg	3060
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gcctcgatgg	tggccttgct	taacggtgtc	ggaggggctg	cttccgctct	cgtgggattt	3240
tgtctctcgc	agctatagga	atcaatccga	ataataacac	ggcgccgact	atccgatctt	3300
ttcgcaagct	accggtatgc	tggcactgac	tgcggtatga	ttaccctcat	aggtagcctt	3360
atcgccgccc	gtaagctaca	caactactgc	ctcagagacc	ggtgatattg	cctaaccact	3420
cgatgtttac	tctttgctac	tgatcctgac	cgtgggattc	gtggtgctcg	gttctgtttt	3480
atcgaagggg	ttccctctct	ctgggctatc	atcggaggac	tgtttttccc	tctctcttcg	3540
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ctcccttagc	ggtgtggccg	gagccatgcc	ggtatggctg	tgggcgatat	tctactcgta	3660
gccgtaggag	gtatttcggt	gccagtggtc	tgttgctgac	gcagattatg	tgccgcgcca	3720
tgaacgcaag	ctcatgtcca	ttctgatggc	ttcgggagca	aaagcaacac	ctgcgctaca	3780
acgccgacta	ctgcttcaaa	acaagaaaaa	ggagaggttg	ccctcctgct	cctgccaaag	3840
cagagaagac	agccggtagc	gtactgcgcg	agccaagcga	gtcatcatcg	tacccggtta	3900
cggtatggca	ttggctcagg	acagcaccaa	gtaagacagc	tggccgataa	acttacggct	3960
aacggtacga	agttcgctat	gccatccatc	cgggtggcgg	tcgtatgccc	ggacacataa	4020
cgtgcttctg	tgccaagccg	atgtgcccta	tgaccaactc	ttcgagagga	tgccatcaac	4080
ggagacttcg	ctcagacgga	tgccgtggta	gtaatcgtgc	caacgacgta	atgaaccctg	4140
ctgctcgcaa	tgctgagggt	acgccatata	cggtatgccc	gtgctgaacg	tgacgatgc	4200
tcccgaagta	atcattgcaa	cttcgacctg	aaaccgggtt	acgcagggtg	ggacaatccg	4260
ctcatacacg	agcaacgggt	gtattcctca	aactcggaga	tgccaaggaa	tcctggcaga	4320
gatcatgaag	gaaatggatg	ccacaggcga	tacggcagct	atgctgctcc	tgccaaagca	4380
gagaagacag	ccggtagcgt	actgcgcgat	ccaagcgagt	catcatcgta	cccggttacg	4440
gtatggcatt	gg					4452

(2) INFORMATION FOR SEQ ID NO:1128

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1128

gcgtctggtc	atgatccatt	cacgtccgtc	caattcaacg	atgttatccc	ggttaaattg	60
gacacatcaa	tatacgccag	gccactgaaa	caggagaaat	gaaaatatcg	cgaaccaa	120
ccaatctggg	tatggatatt	tcttttcaat	gattcgctga	atttcttcat	cggtagaaa	180
ccctctgctg	gaatctgcgt	atgaaaccgc	ttgttcacaa	aggggtcatg	agacagaaat	240
ccatgctgcg	cccataaaga	gtaatggttt	tgaaaagctt	caagattttg	gttgcgtatt	300
cggacaacaa	tgagctacag	tcagcagata	tatctcaaag	ttagaatgac	caacggggta	360
agctctgaga	atttgagatc	cgttctgttg	tattcgcttt	gaggaatcgg	gtaaaatgcc	420
gttgcgtggt	tc					432

(2) INFORMATION FOR SEQ ID NO:1129

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2701 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc feature
 (B) LOCATION 1...2701
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1129

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cataatccaa gtcgtctctg aaaaacaaaag gccaatatag ccttttttgc gaaagtggca      60
aagaactttg ttaaattctt ttctcttcca ctaacaaact attcgttccg tcagggcgctc      120
ttccggattc ttgtcagggt cgtaaccggtc ttcaggctcg caccatagaa gcgggcgaag      180
agattccacc atcccgtttc catccgccga gaaaagcttt gagtagctga tagctcgact      240
gtgcaactgt cggtcgatca gcttgatcag gagcttcccc tgccggaggg tcagcgtttc      300
atctccggca tgtattgctg cttcatctcc ttttccatgc gctgagatgc ttttgtctgc      360
ttttctcatc gggcatcggt tccatatatt cgacgtttcg atcagagtag ctgcgatcat      420
tttggcatag ggcaagggtg gtttacatcc cgaatcagcc tccaaagctc ttgtctctcc      480
tgcggtgtca ctggcgcgac ttgtacttct tatgtttcac ccacacctgc ggcaaagcgt      540
gtcgtacacc gtatcaccct gctccatggt gactacggta ccgtagcgaa catggagtcc      600
ggtataccca atcgcggctc ttgcgcgtac agttggccaa gatcaagagc tgcacaccgc      660
acaaaaacag caaaaaacaat gctctttata catgttccaa acttacaaaa aaaccgattg      720
agactgctaa tatgatgtgg cacaaatcat aatcgattga ttcgcaaagt cttctctcta      780
aagcacagtc ctttacgtcc atatcgatgt attatagtc gttccggat aatcctcttt      840
atcgcaaaag aaattctcgg aacagtaggt ggctgccccg atttcttttg gttccaaaat      900
tttctgttta tgcgttccta aaaacgtggc tgagaaaatt ttcgttttg ttcgggaaga      960
aaataattct cgcgccaaag gaaaaaaaag tcgcgcgtgt tttccgaaa acgtggcccgc      1020
gaattttcgt gattccgggt cgtaaaagag gaagtgtcaa aattcagttt agagtaaaga      1080
tactatcatt tgtataggaa aaccgctacc aaatggacaa aatcatctac ttgatagcgg      1140
tttttctttt atgattaagg tggcatttgt gtcttttgat agttggaaaa tccttttttc      1200
ggattttgac acagccccct tgtattccga ggaacgaaga aaccctgact ctttagttgg      1260
tcttcatcag gcgtccagac ggagcagttg atagtcgtag aacgagcggg cggcagcgtt      1320
gccgtggcct tgcgattgcg atagatgggt tgcacgcgct tgagttggtg cataggaggg      1380
tgcgaatcac ttcatcggg gcctgcttgg agaaggccgt agacggaaga aggaatcggc      1440
tcgctcctct ccgcgctggt gaccgccaca ccgagagcac atgggaggtt gtcctcgctg      1500
agcttgtgcg acagggcatc agctcttcgg acagacggcg tgccgtattc ttgctttccg      1560
tggagagaca ctatgggccc acatgaggtc gatggccagg ttctgaatag aacgatcgca      1620
tcggtcagat tgcccttcac gttgaagatg gcacgatca gctcgtggcg taatccgtga      1680
gcttgtaaac acccggttgt ccggactgct ctgctcgtat atgcgtccta tgctaccggg      1740
gttgaagaga gccgccacca tggcttgccc aagaggtcgg tcatcccaga gttctgctct      1800
accttgttga ggaagccggt tcggccagcc actggcggtg tgtgcgagcc tgattgagga      1860
gcaattcatg gccttgcggt gcttgtcttt tgtgatgaag cgacgggaaa ggtattctct      1920
tcgccctggc ggatttcgaa gtgttccact cctccgatat gggcatgatg tggctcacat      1980
ggcggtagta ttgggacatg agctgtccgg catgtcgcgc agatcatcgt agcgagcttc      2040
cttttcgagg agccattttc catgttcttg gcgataatct tcaggttgct gatggacatg      2100
tcgccggacg gaagtgatcg ttactgagat cctcggctcg atccgtgggg tcgatgtata      2160
ggggaactgc tgtgtccga aggtaaacat gggatcgctt ttctttcggc gatccaagcg      2220
ttcagtgctg ctttttctc ttccagcgtt ttggtccggg cagcagacga taagcccagt      2280
tgatggcatg aatgtcatac acacgatgat ggaggcgtca ggcgtacacc acgctccaag      2340
tcgccgggct gccacaaaaa gttgttgcgg gcatagtcca tgatactcgg tgtggtaccg      2400
ttttttgggt gaactgcgga tcgcgcaggt tctcgatggt gaacgagtag tggcacccat      2460
gttgtgcatc aggcgatgg tgtgaccgat ctcgtagcgc ccacatagcg gagcgattcg      2520
cgcatcactt catcgtcgaa tacagcctgc gaacacgcgg atccacggct cccgtctgta      2580
cgaaacgcc a gttgtgacga gagacaatac attgtgatac cagatcacat ctgcacaaat      2640
gatctcccgc ttccggggtc tacgaaactc ggccccatgg cgttggccgt ggtcgtgtgg      2700
c

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(2) INFORMATION FOR SEQ ID NO:1130

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1130

tattccttat	agctggcagt	gtcctacaaa	agtgtctaag	ttcctaaagc	aatactcatc	60
gtacgcacat	gattcaaata	tctgttttcg	ttactcttaa	gtctctttac	cattacgtaa	120
tctacttgat	tctctttgac	cacattgatc	cgctgcttag	atacattttt	gtcgcaaagt	180
tggctttttg	tacagaagtg	aggtttgat	agcttgctgc	gcgaagatga	tcaagtaatc	240
tccaacgtct	aatgtgattt	tcgtaaaatg	ttctgtacga	aaatcgttca	tcaaggaatc	300
ggtttgttgt	gttctgtgtg	agtgtaagta	aaccgcgcat	tttttgtacc	ctcttcgatt	360
tttcattgcc	gtcaaaaata	ccgcacccaa	ccctgtctgc	cgtaaatttt	caaaagcata	420
ccgaagcact	ttcgtttaca	gttcaggaat	taagccctgt	ccccaaaatg	gttcgccaat	480
ccagaatcct	tt					492

(2) INFORMATION FOR SEQ ID NO:1131

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1131

cgaagtatcc	gagcaaagaa	gaaaatagaa	aaacgataaa	agtagaatag	catacgacaa	60
tggcaatgca	gtatctgcaa	agatctgggg	gataaaaata	tcatgacaat	gcccccaagc	120
ataacaatag	aggcaacaat	aaaataaccc	acccctgaac	ggaaacaatc	tctcgtattg	180
tctctcgatc	attctcgcaa	tcggcttata	taatgtaaat	gatatagccg	tagctatccc	240
catctagaca	agttgagaag	gcctaagaga	ttagtaattg	tagtattgag	tcctggagtt	300
cggcacctaa	ggcatcaata	aaaactctac	gtgagaagaa	agtaaaataa	taagaagccc	360
ataaaacaaa	agtgagatta	tactattttt	tgactattgg	tcgttcgaga	agtcctccacc	420
agatattttct	ttatagttga	taaataataa	gacattgcac	aaaacataaa	ggcattgctc	480
cacctcatat	gggaatctta	gagctaaggc	caggcttcat	ttgatagtaa	aaatagccct	540

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cttatcctgc atactgctaa tagtccaagc cataaccgca tccaccaatc acgatgttcg      600
tcatagcgat gaagtctagc tagcgacacg aagagctacc aggacatgat gtcgattgga      660
taagtcgatc gggataatac tgggcaacca                                     690

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(2) INFORMATION FOR SEQ ID NO:1132

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 695 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...695

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1132

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aacaatatga cgggggtgga atacagcttt ggcaaagtct gcaatcctat tacggggatt      60
ccgtattcgg attcgtgagc aatagcggta tcaagataac cgcacggact gcccgaaatgc      120
gccggatatg ttcagccgat acggttacgc atcatcgaag ctgctggag cggtaaggga      180
tcgaccggat acgaggtaca cttcatgtca taggacagga caatctggcc atcgtgacga      240
acatacttcg gtcatacaata aagaaccagg cgtatcgctc cgagcctatt cgataattcg      300
aaggacaatc tcttcgaagg ggtgttcacg gtcgaagtac ccgtacctcg acactatcca      360
tcttccttcg caagatccgt gctacgcgat ggtcaagtcg gccgaacgac attgacagcc      420
ccttgcaagt ctttagtagt gactacatgg tctggatgat gtgtatcgta ttcttgagca      480
gaacggcttg aagtctttag tagtggagta catggtttca gacagaatag cgtatatattc      540
tatcaatatc gtgtaatgtt ataagcggat aaggtatggc gagaatcctg ccaccggcag      600
gaaaaaagct gacggctatg cgtttatcac aggcctctca aggaggtata aaataaaaagg      660
caatggctca gagttagtta atagggatta cgacc                                     695

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(2) INFORMATION FOR SEQ ID NO:1133

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 767 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...767

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1133

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gaccatagta tcctctcata ggagaccata gtatcctctc ataggagaca tagtatcctc      60
tcatgtgaga ccatagtatc ctctcatatg agaccatata tcctctcata ggggaccata      120
gtatcctctt gtatgagacc atagtatctc tcgtggaagt tcattctttg tatctcaggg      180

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aaagaccggt	gagcagtgta	tcgctgtcaa	gtaaacagag	agcagtgcc	gaatacgttg	240
ccaatgataa	gcatatcgac	ttggttcgaa	aatacattcg	ggctttccta	tatcattcgc	300
tggcatgacg	tccctgaatg	aaacctcttc	tcgtcggatg	atttccttgt	tgtgccatcg	360
ttttgtgtca	ttgagatcat	accataaaca	caaaaacaat	cggccgacac	actgtaaaaat	420
gaatggataa	agtgcctgct	tttgccgaaa	ggtctcagaa	aagaaaaaaa	cacaaagagg	480
gcgcacggtt	agatgcgccc	tctgcttttc	agtcgcccct	atcttcaggg	gattatttag	540
cttgtctatt	gagcctttgc	aacaggagcc	atcatgacaa	caaccgatac	tgctgcttca	600
agaggctctg	cgcaaacctt	tgcaattcag	caggagtaga	ccgttcagta	cggattcgta	660
gtctgtgatg	aagtcatttc	cttcgagaaa	gacgccttca	gggcttcgag	ccagaaacga	720
ttctcacgca	gacttctttg	tgctgcttat	tcagggggac	cagggggg		767

(2) INFORMATION FOR SEQ ID NO:1134

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1776 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...1776

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1134

gccaaagccg	ccgatattct	tttgcgtaga	ggctatthttg	tttacaacct	ctgggcggat	60
ataaaggcta	tccgtacaag	taagtgtac	ctggagagtt	tcgggacagg	tttctctact	120
tgctctctac	ccatagctct	tgthttctct	cctttacccc	gaatggatcg	tcctaagcct	180
tcataatattg	ttcgaaagca	gccattctct	gcttgthttg	cggcaggcct	ttgthttgcgc	240
agagcatgtg	gactcgtctg	atccgctgat	cgggacgcta	agthctthttg	agctagtgcg	300
ggcaataacct	atccggtgat	cggthttaccg	tggggaatga	atactggaca	ccgatgaccg	360
gtgtaccccg	tgacggctgg	caatatacct	accggcacac	aagattcgcg	gattcaaaca	420
gaccaccaa	cccagtcctt	gatcaacgac	tacggccaat	tctcccttct	tccccttacg	480
gcaccgcaga	gccatcatcg	aacgactcca	tagctctgac	taaatgggtg	aagcaactct	540
ttcggacgaa	cagacctcgt	ggttctcgca	caaagcggag	acggcgaccc	atactattat	600
agtgtctatt	tggccgatta	cgacacacgc	gtggagaggc	tccgaccgag	cgtgcagcta	660
tctttcgcat	acgttatctc	ggcaatccga	aagtggtctc	ggtcgatggc	ttcgtcttga	720
tgctthttacc	ggtggctcga	gattagcatc	gtggatcctc	acaccgtagt	gggcataatct	780
cgcagaatag	cggagggtgtg	ccggctaact	tcgcctgtta	thttcatcctg	cagccgatac	840
tcctatggcc	gatgtcctgc	ttgagacaga	taccggcaag	tcgacgaagg	cacaagggca	900
tgggcagcct	gtcgtctcga	ttcgcaagaa	gtaccgtccg	ggtggcatct	tctthttatca	960
gtgtcgagca	ggccgaaaga	atcttgcgga	agtcaaaggg	cagagthttcg	accggatcag	1020
acttgccggc	gcgaagcttg	gaataagggtg	ctcggacgca	tacatgtgga	aggaggaaga	1080
aggatgagcg	cactacattc	tattccgcac	tctatcgctg	tctgctthttc	cccgctcgctt	1140
ctatgaggag	gatgcttccg	gcaatthttgt	gcattaagcc	cctacaatgg	agaggtaactt	1200
cccggthtatc	tctataccga	taccgatthtt	gggacacttht	tcgagccctt	thccccctgc	1260
tcaatctgct	gtatccgatg	aaaacattaa	aattcaggaa	ggtctgctga	atgtatatcg	1320
cgaagtggct	thttccccga	atggggccagt	ccgggccatc	gggattgtat	gaaggcaaca	1380
actctgcttc	tgthctggcg	gatgcctacc	tcaagggtgt	tgggtagaag	atacccgtac	1440
actgatgaac	ggactcttgc	atgctacgaa	gctgtccatc	cgaaaatctc	ctcccagggt	1500
cgcaaagggt	gggagtggtc	aactccttag	ggtatgttcc	ggctgatgca	ggcatcgacg	1560
aaagtgtctc	cgtacgctcg	aatatgctta	taacgattgg	tgcactcctc	gactgggcgc	1620
acattgggtt	gggatagagc	tgcattggac	acgttggtct	atcgthtgatg	aactatcgctc	1680
atctggctga	tccggaacc	aaactcatgc	gcggtgaaat	caggatggta	gthttccggac	1740
acctthtttcc	ctthtcaaatg	gggaatgtat	tcacgg			1776

(2) INFORMATION FOR SEQ ID NO:1135

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 3597 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...3597
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1135

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aggtgtcgga agaagttgtc cttgaccacg cgttttatcc ttgacgaagg catcaccttg      60
gtctgcgcac cgccgaagca gtgtaccatg ccatgaatcg acgactcatt tcgtccagta      120
tggccttgac cacaggggcg taggtactgt gggcgagagc acgagcttgc ctgctccag      180
ccccaatccg gctatgcacg ggtcagcttc atgctgccgc tatagaccaa atcgtccggc      240
accgaggatc gaaactctcc ggatacttct ctgccagata gtgggcaaaa acgtgtggcg      300
agcagaggtc agtccgttgc tccccatacc gccgttgtag tgctctcgta ggaagcttgt      360
ccgaatgagg ctaaccgcac gataacgtcg ccgccttgat acgggcattg tctatcacat      420
ccgatcgctt catccggcaa gcaccgtact gtccacgatg atagtctga cgagatcgcc      480
cacatcagcc ttccaccccc cgtggcatag gcattcacac ccatgcgacg cagatcgcca      540
ggagtctctc cgtgccgttg ataatacgcg ataccacttc gcccggtaca gccgtttgtt      600
ccggccgatg gtcgaggaca caagtatatt atccacgcac cgacgcacag cagatcgctt      660
atattcatga tcagcgcatc ctgtgcattc ctttccatac ggagaggctt cccgtctcgc      720
gccagtaaac gtatgaagcg agcttttggg gccggccccg tcggcatgca tgatattgca      780
atagcaggat cgcccccgag aatatccgga ataactcttg agaatgcctg agggaaaatac      840
ccttgctccac attcttgatg gcggcatgca catcctcttt cgggcccaga ctccgcgcag      900
gttatagcgt tcgttagaca tatagctgct tgtctttgtt ttcttgtttt agcgcaagcg      960
cagtatatcg ccctcttggg tatatatctg ccaccttgtt cgttgagctt gtagagggtc      1020
ttcatccggt gccatagcgt tgggagatac tgtgcacgca atcgcccaca cgcactactg      1080
ctgtgtgtgt ttggagatgg agcatgcgtg ctttttctcc agatagacac atcgcccttt      1140
tcgatcggga aatccacggg agcatcgctt tatttgccag tttggaggct ctcatgtcga      1200
actcttcggc caaagaatcg aaggttcgcc ttgcttggtt atgatgtaga gcagtcgcta      1260
gctgaagtaa gcttggtgctt gagtccgctc tgcttctgct tggtcgtttg atgggatttt      1320
ttgtggaccc ggggtaagac ttgtggaacc atgaggggta cttctcgcga tcaaagcata      1380
tagctcatac agtccacca tcttgatcag cagattggca tgccccgatt ggtggcatag      1440
ccacagcggt gcaaccccgat agcccagccc gatagctctc tctgtcgagt ttgaacaggg      1500
gacgatagcg tggttggaga gaaatcggcc atgatcttca tacgattcgc gagcgccga      1560
atagctgcga agcattcgct cggcgcacgc tcggtagcat aggtgcgctt gcccgtcacg      1620
atgtgtggca ttgatcccg aagtgattgt tgtgtacgct ggccaggtag tggctccggc      1680
tctgtctccc accaaagcct gtgctatggt gatgctgccg gtatattgta gcggtcatc      1740
tgctcgatag cttcgtcggc gtacgtttca cataagcctc gtatgtacgg ttctgactct      1800
gagcctgtcc gatgctgtcc cgaagaaaaa gagaaccgaa acggaaaagta tctgccaaat      1860
gttgcctcca tctgtttgaa atagtgtcaa caaaacaacg ttagctacaa agtacaaaata      1920
aattgcagtc cgtcaggagg attcggagcg atctcttttg aaattttcag tctcttccct      1980
ctataatttg aatccctgag atatgaattg tgcttgtttt gataattgaa tgtagcaatc      2040
atgaagctat acgtacatag gagttcaagt gcgattgccc tgagtgatct acaccctctt      2100
tatttgtctt taatacggac aggggatttt ccaattcctc aaccaataga tcgaccttgt      2160
acaggggttg tgattagcat aatctttatc cttgtgtttc aagcgagttt ttcggcatat      2220
cgcttgcta aaattccatc tccatggtct ttcatatggt gtaaaaggag ggatcattct      2280
tattgtatcg gaaagaatta tcataagtcg ctttgtatc aagttttcaa gtttggaat      2340
gtaagcatca cgctgatagg tacatccaga tattggaaat ggagaaggaa ccacaattca      2400
aagcttcggt tgtccaagcg catccgaaac catagctctt tgcaaggctc tagcttgatt      2460
aaaatcatca aaatcgctt tatcaaagac aaccctaatc gatcaaagcc taattcacgc      2520
tctttttcga gattatcccg aatctcttgg ctgcttcgac taatgcacaa gtagaacaac      2580
cttgtccctt aatctctcct cacgaacttc cgagtagtgg ttgtcaatca aagccttaaa      2640
atagttgggt ccgtcttttg tcttcacaa acgatcagga atcgaactat tatgtccggg      2700
tattctcttt gcgttttctt gcggcttttg cttctcgctt ttcagtttta gtcgttctat      2760

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ttctcttttt	ggtggttgtc	ccatggctct	acattgaaaa	aatgaacggg	atagctccat	2820
aacgtccggt	aatatagtcg	tttgaaaact	ccgatcttta	cgaactttta	ctccttctgc	2880
atctcgaaac	ttatcaatga	ataaagatcg	gaggattctg	tcctgtcttt	ttccgtgaac	2940
agatttgatc	acggcgtaaa	taatcgccct	tcagcagatt	tgtgtcgtgg	tattaaagat	* 3000
caactgtgct	ccattgggat	ttgtctccgg	agacataaca	acttcagaat	acttctggtc	3060
aaaagggggg	ggagtttggc	atctaatacg	ctatcagcaa	aacagaacct	tctttcaatg	3120
tgtcgaataa	agggccgaaa	gctctatgac	tttcttggtt	ccttccgatt	ccatttcac	3180
cttgggaaaa	ttttttcctc	gacctgatta	ccgtcttggt	catataccca	atgaaagttt	3240
tgattttctaa	tacgcttcgg	ccatcgaatt	ctttcaatat	gaatctttca	attcatccgg	3300
tacttccttg	agtacatcgt	tcgaaagagg	ttctctgtga	cgatcaagtc	tttgaatcct	3360
aactgcgtgc	gacggaagaa	gctttggctt	cattacatcc	ttccggattt	tctttgagca	3420
ttttcagggt	aagccttcat	aaccctgttt	ttctacaacc	gaaataagat	tgcagtgtca	3480
aaccagtcca	aaatagaaga	tgattttctt	ccatttagct	gcgcacacag	gacacaaaaa	3540
gtctattccc	gggcgtagca	tctgctttgc	tatcacctcc	ggaaatcgct	tcttggg	3597

(2) INFORMATION FOR SEQ ID NO:1136

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 756 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1136

gtgtcggaac	agctaagaga	cgggatagcg	ttcttcgccc	gaaagtaccg	cacatgaaat	60
acctggccta	tttccaagcc	tataccaata	cctatggaag	caagccgaga	tcacccgtaa	120
atacgaagag	gctctgaact	actacgagta	gtaggcatta	ttataggtac	cagaccggac	180
tgcattgccg	attctctttg	tcctacttaa	aggatttgtc	ggaaagagta	ttcgttctcg	240
tggaaatggt	gtagagagta	cactggatgc	cactcttcgg	cgagtgaatc	gtggcacctc	300
tggtcggata	gtatggcagc	tatcgagcga	acggctaaga	ccgattgccg	ataggtgtgc	360
atctgatcct	cgggctgccg	ggggaaagca	gaaagatata	ctcaggcacg	cggacaagat	420
atcggcattg	cccgtcacta	cctgaaattg	catcaactgc	aaattatccg	cggtacggct	480
atggccaaag	atatgcagag	agtccttcgg	actttcattt	ttactccgag	gaggaatatt	540
cgatctgtgt	cttgatttca	tcgaacgcct	gcgtcctgat	attgtgctga	gcgtttcgta	600
tcgcagtctc	cggccgaact	tctcctgatg	ccgaaatgga	ttgaagaatc	acgagttcac	660
acacctgatc	cgtcgtcgca	tttcaaaacg	cgatatcaga	cagggacgga	ctggaaagat	720
aattcccttt	gctattctac	aggaagaaac	cggtgtg			756

(2) INFORMATION FOR SEQ ID NO:1137

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1349 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1137

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ggctgataga gcgacaatta ttcgggcacg tacagataga ggaacgaggg agaataaaaa 60
acctcgtaca tgatgggaca ttcgtccatt gccagcacca aatctacgct taaatcacag 120
gccaaaagat tgcaaaggat atggagagct gataaagaaa tatacgggtgt ccgttgtaaa 180
tagaagaggt tttattttaa tccacaatag gattgtgtag ttttgcatcc gtcataagggt 240
ctccttacgt catgaacaga ttaagggaag cattaaaaga aagggggaatt actcaacgga 300
gctttcaact cgcttgggca agagctttta tatggtcaat ctcatgttgc caacaagcat 360
cagccctcaa ttcctaccct cttccaaata gcgagatttt ggatatggac gtaagagatc 420
tcttggtatc taacaagcaa caaacaata atgaaactga tagatataac aaaaggatcg 480
gaacacgacc cagtcttttc tcagacgaaa agattgccac attagagtct cgtatcactt 540
aaaggaaggg aaaaaagggc ctatttccta tctttcctgt ctctgttcgaa gcaggagatt 600
aagcttacct ccgaggaggt agtgcgctag ttatatcaat ggtgcttacg gaagactttg 660
gttatccact ttctcgcatc aaattgagta tgaggtaacc ttcggtcggg aaaagaagcg 720
agccgacatc gtcatttcga caagcaacaa acagatagcc cttatatcat cattgagggtc 780
aagagccgaa actcaaggat ggtaaagagc aactcaaaag ctattgcaat gccctggagc 840
acccatcggt gtatggagta atggcaagag catatcctat tacaccgtaa agaccctaac 900
tattttgaag acatcagcaa tatcccgaag gtgatcaaaa actttcagat attccttcgg 960
agcgttgagc gatagcagac ttatagaaaa agataagctc attagcgaac gcaagtcgct 1020
caaagaccta tcctcgaaat ggaagacgaa gtgttggcag gagctggggt ggatgtgttg 1080
aagaggtatt caaacttatc ttcaccaaac tttttgatga gatggaggcg gacgcaacaa 1140
tgagcgcaac ctcgagtttc gcaactatgg cgatacgaga ccgaactcaa agagcgcatc 1200
caaaatcttt ttgataaagc tcgtgcaaat gggaaggtgt attcagcccc gatgccaaga 1260
tacagctgac gcccttcacc tttctgtctg cgtagcatcg ttgcaggacg ttaagctctt 1320
caatccaatc ttgatgtggt gggcgaagc

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(2) INFORMATION FOR SEQ ID NO:1138

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1078 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1078

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1138

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ccggcgata tgcctacccc ggtactccct ctacggaaat caccgagcaa tccaaaactc 60
tcggatggct aaggaaagaa atgtccatcg ggaatggggg caaacgaaaa aaccgctatg 120
gaatcaagct ctccggcatgt cctacgcggc aagcgcgctc tcgtatgtat gaagcatgtg 180
gggatgaacg tagcagagac tgctttatga atgctgccat caccggtgcg aatggcggtg 240
tggtgtcgtt gctgccgacg acccctctat gcactcgtct caaaatgaac aagatctcgc 300
gtgtatggcc agtttgccat gattcctgtg atggagccat ccaccaacag gaagcttatg 360
acatgacgcg ccttgccctc gatctatccg aagtttggtt acaccgctca tgatgcgtat 420
tacgactcgt ctcgctcact ccgtgccggt gtcgttcaga ccgagccgat cggagagaac 480
gaattgcacc ctcggaagc aaacgccaat atgtattgct ccccggtatt gctaagaaag 540
atacagaatc ctctcgaca agcagaccga tttcgtacgg gagtccgaaa ctaccctat 600
accgaatatg tcgatgccgc tgataagtcc aagggttaagt ggcatgcggt atcgcataca 660

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actacctgat	ggagggtttc	aaggctaggt	gccttatccc	gttctcaaag	taacgcagta	720
tcctatccct	cacaacagat	ggagcgattg	ctcaacgaat	gcggtgacat	cgtagtcatg	780
gaagaggcta	tcccgtggta	gaacagctac	taaaaggctt	ccccggtttg	gagggatcaa	840
aggtcgtctc	gatggcacat	tgccccgtga	tggagagttg	aaccggatca	tgtggcaaaa	900
gccttcaata	taccggtcgt	ggagggagaa	ctatccccga	tctcgttgcg	gcacgtccgn	960
ccgccctgtg	caaaggctgt	gccaccgcga	tgtgtacgat	gcgctgaacg	aggttcttac	1020
agaatatcca	acggacgtgt	cttctccgat	atcggatggt	atacgcttgg	tgctttgc	1078

(2) INFORMATION FOR SEQ ID NO:1139

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 967 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...967

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1139

gcctccgatg	tggatgaatgc	cgtgatcatg	gctcccactc	gcgaactggg	cagcaaatag	60
atcagcaagt	ggaagggttt	tcttacttca	tgccggtacg	gccgtagcca	tatacggggg	120
tacggacggg	gtggcatggg	agcagcacgt	cgggggatgg	ctatgggggc	ggacatcgtg	180
atagccacac	cgggactctg	atctcgcata	tgaatctcgg	ttcggccgac	ctctcccacg	240
tctccacttc	gtattggacg	aagccgaccg	catgctggac	atgggtttct	tcgagacatc	300
atgcagatat	acaagcagct	gccgagttcg	tgccagacgg	ttagttttcg	gctacgatgc	360
cccccaagat	ccgcaagctg	gcagcatcta	tttaagggat	ccgatagagg	tggagatcgc	420
catcagccgt	ccgcccgcga	gatcatgcag	agcgcataca	tttgtcacga	agcgcagaag	480
ctgccgatac	ccgcaagctc	ttcgagcagt	cggctccgaa	gcgtaccatt	attttcgccc	540
ggccaagctc	aaagtgcgtg	agctgacttc	cactctccgc	aagatgggtt	caatgtggcc	600
gatatgcact	ccgatctgga	gcagtcccag	cgcgaacggt	gatgcgcgac	ttcaaaaacg	660
gctatgtgga	tgtactttgt	gccactacat	cgtagcgcga	gggatcgaca	tcgacaacat	720
acgcgtagtc	atcaatacga	cattccccac	gatcccgcga	actatgtaca	ccgtatcggg	780
cgtatgcccg	aggaacaaac	ggggaggggc	tggctatcac	tttcgtctcc	gagaagagca	840
gagcgacttc	cacaagatcg	agacgtttct	gggcaaatcg	gttataaatt	gcctgtcgat	900
ctggagtttg	gtgaagtccc	ggcttacgaa	cggcgaaacg	tcgccctcgc	cgtttggggc	960
gaagcgg						967

(2) INFORMATION FOR SEQ ID NO:1140

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 579 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1140

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ggctgtgaag tttatgaata gattcgggga agaattgata agaggtgtcg ctggccgaag      60
tcatatacac gctacttgct gccattgaa gggttttctt ggagaaagtc gggaaaaagg      120
ggattcccat cgaactccgt cctgcatcgt tcggtatcag ggtgcatctg cttcgattcc      180
gaatatagcc ctcttgata cacatagtc cctaaagctt tttaacgtca gttcgacgtc      240
tatatataac gtgagttcga tataagcgtt atggtgccga ctctcataag tattgtcgat      300
caatcctttg ttgggttaac tataaccgat cagaaaatga aaggaaaaaa tttgacgtct      360
catcggatgt cgaagtctcc cgaagctgaa attctcaacc gagaaatgaa atacgttgac      420
aaacagcata ttgcatgttt tcttgatcg aatccgcatt gttttatagc cgttcggaac      480
atactccgaa gggggtcgag ctacgcccta cagcgactcg ggctacgccg tanagcgtac      540
gagctgcgct ctacggctct ttcgagctac gctgaaggc      579

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(2) INFORMATION FOR SEQ ID NO:1141

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc feature
(B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1141

```

tctaaaagga tataccgatg aagatagtaa tatgcggaca gctatgcagt ctaccggcgg      60
atttggactg gagcgggtatc gaagaaatgg gcgaatgctg ttctacgaat ataccggtcc      120
ggaggatttg actctgcgtg ctgtcgagct gaaatagtgc ttaccaacaa gactcctgtg      180
actgcggccg acatggaaag atgccccacc tacgttacat cggactgatg attacaggcc      240
ttaatttata gatatggatg ctgctcgtca gcgtgggtatc accataacga acatccccac      300
tatagcacag aatcagtagc ccaaattggca atctcgcata tacgcacata accatgccga      360
tcggagaact ttcccggcag gtgaaagatg gtgctggcag agcaattacg aacaaatctc      420
tcgcaatact tatcagatag actgagcggg ctgacgatgg ctatcgtggg acttggggca      480
ataggtacac tgtagcggaa atggcacgtg gattcggcat gaagattttg gcacatacac      540
caaatctcca atcgagttgc cttcttatat agaaaagtcc cgatagccgg agaagctttt      600
ctcttcgggc tgatgtgctg agtctgcatt ggccgctaca gtgcaaacc aaagatggtt      660
cggctgatta gctggccttg

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(2) INFORMATION FOR SEQ ID NO:1142

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 625 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...625

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1142

```

tccagcttac ggatttggtt acccgatagt tcaagcggtg ctaaggacgg agacgttcca      60
gacctccag cttacggatt tggttatcca aaagataagc tccgctaacg aggtgagacg      120
ttccagacct tctagcttac tgatttggtt tcggagagag aaagttttgt tagcgaggtg      180
agactatcca ggcccttagt ttactgatct ggttacttct tagacgaagc tttgttaacg      240
aagtggacgt tccagaccct ctactgtact gatttggtta cccgacagat aaagtccggt      300
aaggacgtga gacgttccag accctctagt ttactgattt ggtatccaaa agataaagct      360
ccgctaacga ggtgagacgt tccagaccct ctgcttactg atttggttat cggagagaga      420
aagttttggt agcgaggtga gctatccagg ccctctagtt tacggatttg gttacttctt      480
agacgaagtt tgtaacgaa gtaagacggt ctagaccctc tagcttactg atttggttaa      540
cgatagatca agctttttta gacgagaaa atcaataagc caagtcactt ttctatctga      600
cattctcgca agcaaagctc aacga

```

(2) INFORMATION FOR SEQ ID NO:1143

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 594 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1143

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aagagataaa gcaaattgac attgcttggt accagcaaag catcatacct tcttcttcca      60
ttgctatacg tacacgctct tggcgactct ggagatctcc ttcaaggctg caggtgctaa      120
tttgatcata atattttgag attatttgat taacgaaaca aaagtactga atagcatatt      180
cgcaagtcac gaataacacg atttatcagt acagaaagct gtcttatccg attatagaaa      240
gtcttccgat ttcccgattt gcttcttcta ttgcgaaaa tcccgtagca tagtccatac      300
agtgtgtcta tgcatttgct ctctttactc ctgatgcact ttgaatctac tcgaatgagc      360
ctcaaaagcc tgctccggcg ataactctcc aatccggcaa aatttatctg accgacgaag      420
ctgtgtagca ccactcctcg atctgccatg atccggtgcc aatcgctgta tggactatct      480
ccccttcaga acaataccta atcgggtttcg gcaatccggt ggctatactc gtctgtgtac      540
catggcatca atacttaaca atcgtgccac ttaactctaa ctatccagct actc

```

(2) INFORMATION FOR SEQ ID NO:1144

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 726 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc feature

(B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1144

gcgatgcttt	cgaaagattg	cctcagccgg	agccgattcg	cagacggctg	tacgcgtcgg	60
ctcctctcct	gttcatgagg	agcgaatggt	tcatacagcga	taggagattt	gtgcgtgggc	120
gacacgggtg	cacatgcgcg	cttcggatag	gaatcatcga	atccctcgaa	ggagaaggcg	180
ataatgccaa	ggctgagttt	cgtttcagca	ggtaggacgc	aaacgtctgt	tacttcggtt	240
tgccagctat	ccaaagtgga	aaaagattcg	atctgaacta	cagtgttctg	tactaaaaac	300
gtttaggaca	ctattgggtg	tacaccggtt	tgctctttga	ggtttattgc	ttcgtggggg	360
tatatttccc	aaaagcaatc	ctttcttctt	attgttcaaa	accatgagac	tgactcagcc	420
atccatgagg	tgctctaagt	taaagctaag	tgtcgaacgc	ccttgagggt	agttctgtgt	480
acaaagatcg	taaccgatat	cgaatcagtc	aataacccaa	gatgaatcat	ccgagtataa	540
acacgagggc	gatgttcata	ataaccggtg	ccccaaangt	ccagctccga	ttgtagagtg	600
gagattctat	tcctaagagt	ccattaatag	catagggagg	acatcggtca	tgatgcgtcg	660
ctcctaattg	attgcaatcg	aggatagctc	cggtattggt	cttcatagat	ggactgagat	720
agataa						726